NEC

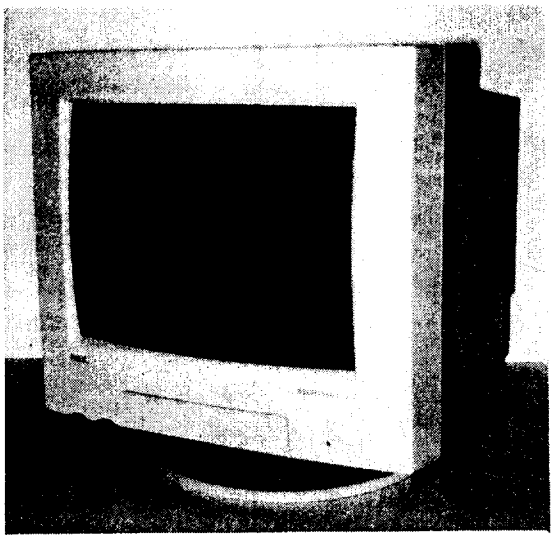
MODELS JC-1432VMA/B/R

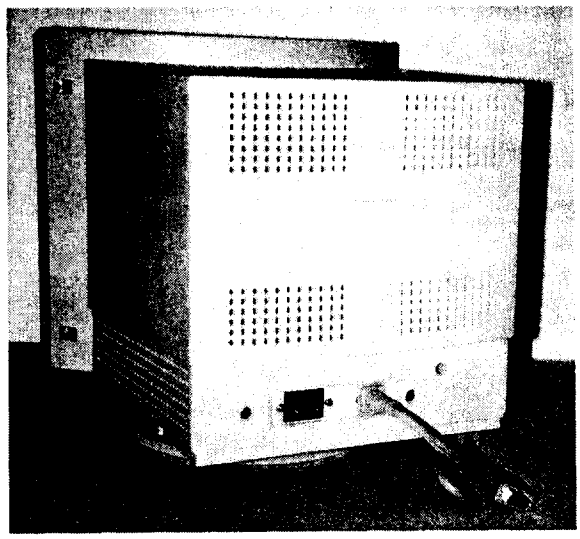
COLOR MONITOR **MultiSync® 2V**

SERVICE MANUAL

PART NO. 599910373

Better Service
Better Reputation
Better Profit





NEC Corporation
TOKYO, JAPAN

CONTENTS

	Page No.
SPECIFICATIONS	1
MONITOR ADJUSTMENT CONTROLS	6
DISASSEMBLY	8
PWB LOCATION DIAGRAM	12
LOCATION OF ADJUSTMENT PARTS	13
ADJUSTMENT PROCEDURES	15
TROUBLE SHOOTING	24
CIRCUIT DESCRIPTION	29
PARTS DIFFERENCE LIST	45
REPLACEMENT PARTS LIST	46
BLOCK DIAGRAM	51
PRINTED WIRING BOARDS	52
SCHEMATIC DIAGRAMS	END

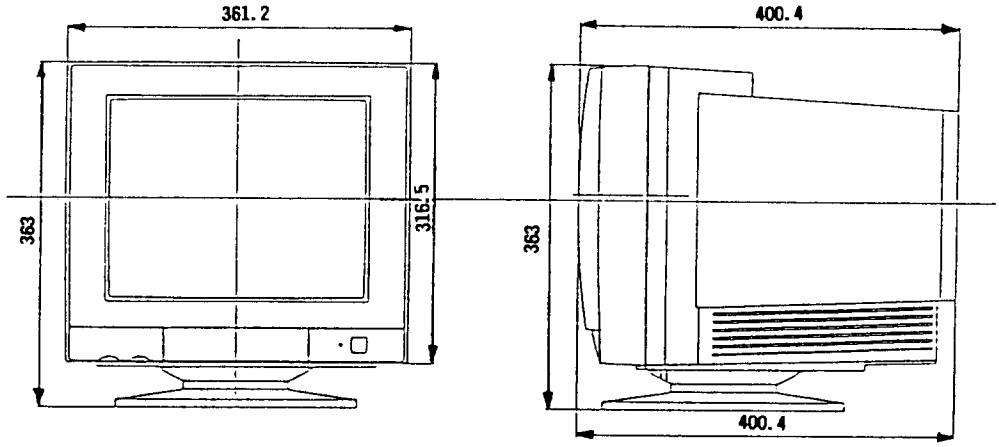
SPECIFICATIONS

1. Mechanical Description

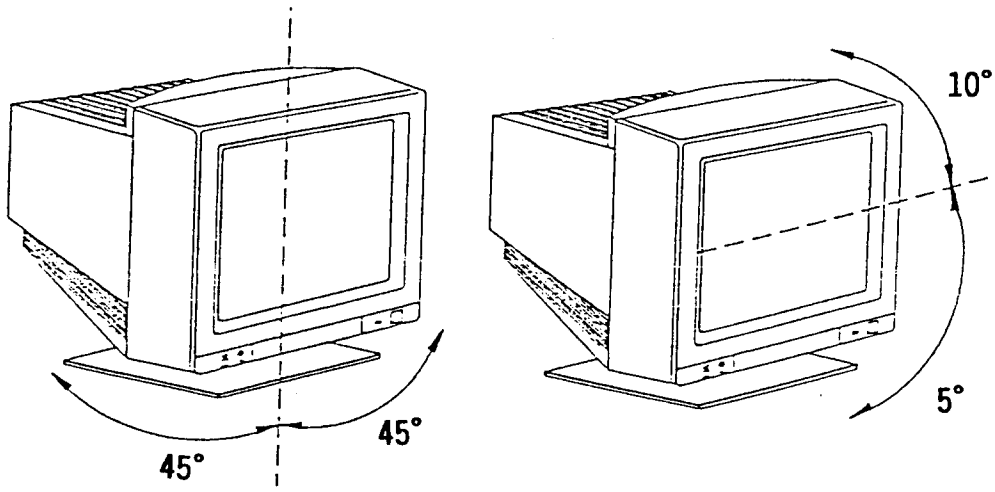
1-1 Dimensions

Height : 363 mm
Width : 361.2 mm
Depth : 400.4 mm
Weight : 14 Kg (maximum)
Picture Tube : 14" diagonal, 90° deflection
0.28 mm trio dot pitch

1-2 Dimensional Drawings



1-3 Tilt and Swivel Adjustment



2. Environment

2-1 Operating Ambient Temperature, Humidity and Altitude

Temperature : 0° C ~ 35° C
Humidity : 20% ~ 80%
Altitude : 10,000 FEET (maximum)

2-2 Storage Ambient Temperature, Humidity and Altitude

Temperature : −40° C ~ +60° C
Humidity : 10% ~ 90%
Altitude : 45,000 FEET (maximum)

3. Electric Performance

3-1 Power Supply

Input Voltage : 100 VAC ~ 240 VAC (universal)
Input Frequency : 50/60 Hz
Power : 100 W MAX
Inrush Current : 42 Ao-p (maximum)

3-2 Sync

Separate Sync TTL level
horizontal sync (positive / negative)
vertical sync (positive / negative)
Composite Sync TTL level (negative)

3-3 Video

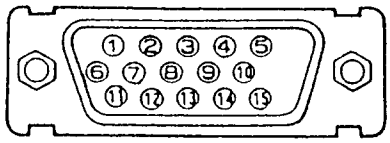
Input Connector : 15-pin MINI D-sub connector
Signal Level : analog 0.7 Vp-p
Polarity : positive
BandWidth : 75 MHz (−3 dB)

3-4 Power Management

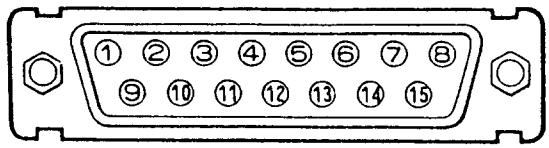
On-state : Green indicator is lit
Stand-by state : H-sync is off and Orange indicator is lit.
Suspend state : V-sync or H/V sync is off (less than 30 W) and
Orange indicator is lit.

Pin Assignment Table

MINI D-SUB 15P



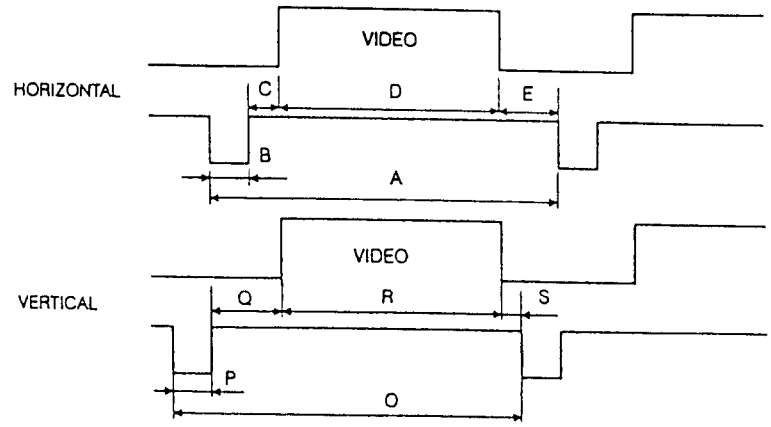
Macintosh with optional Adapter D-SUB 15P



Pin No	Mini D-SUB 15P	D-SUB-15P
1	RED	GROUND
2	GREEN	RED
3	BLUE	H/V COMP SYNC
4	GROUND	GROUND
5	NO-CONNECTION	GREEN
6	GROUND	GROUND
7	GROUND	NO-CONNECTION
8	GROUND	NO-CONNECTION
9	NO-CONNECTION	BLUE
10	GROUND	NO-CONNECTION
11	GROUND	GROUND
12	NO-CONNECTION	NO-CONNECTION
13	H SYNC,H/V SYNC	GROUND
14	V SYNC	GROUND
15	NO-CONNECTION	NO-CONNECTION

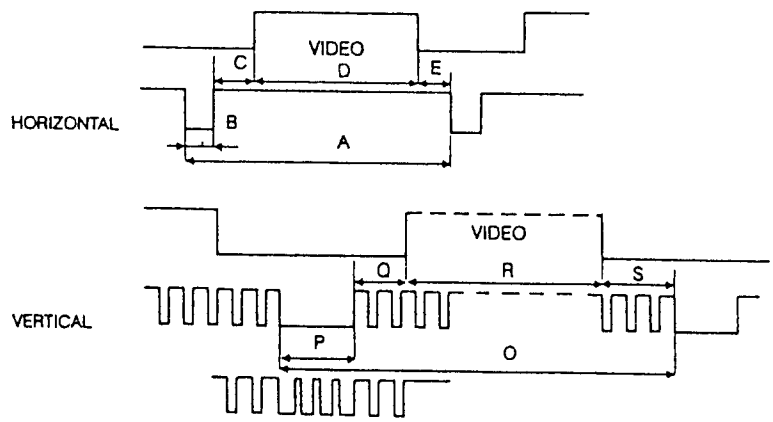
Input Signal Timing Charts

SEPARATE SYNC



Sync Polarity: Positive/Negative

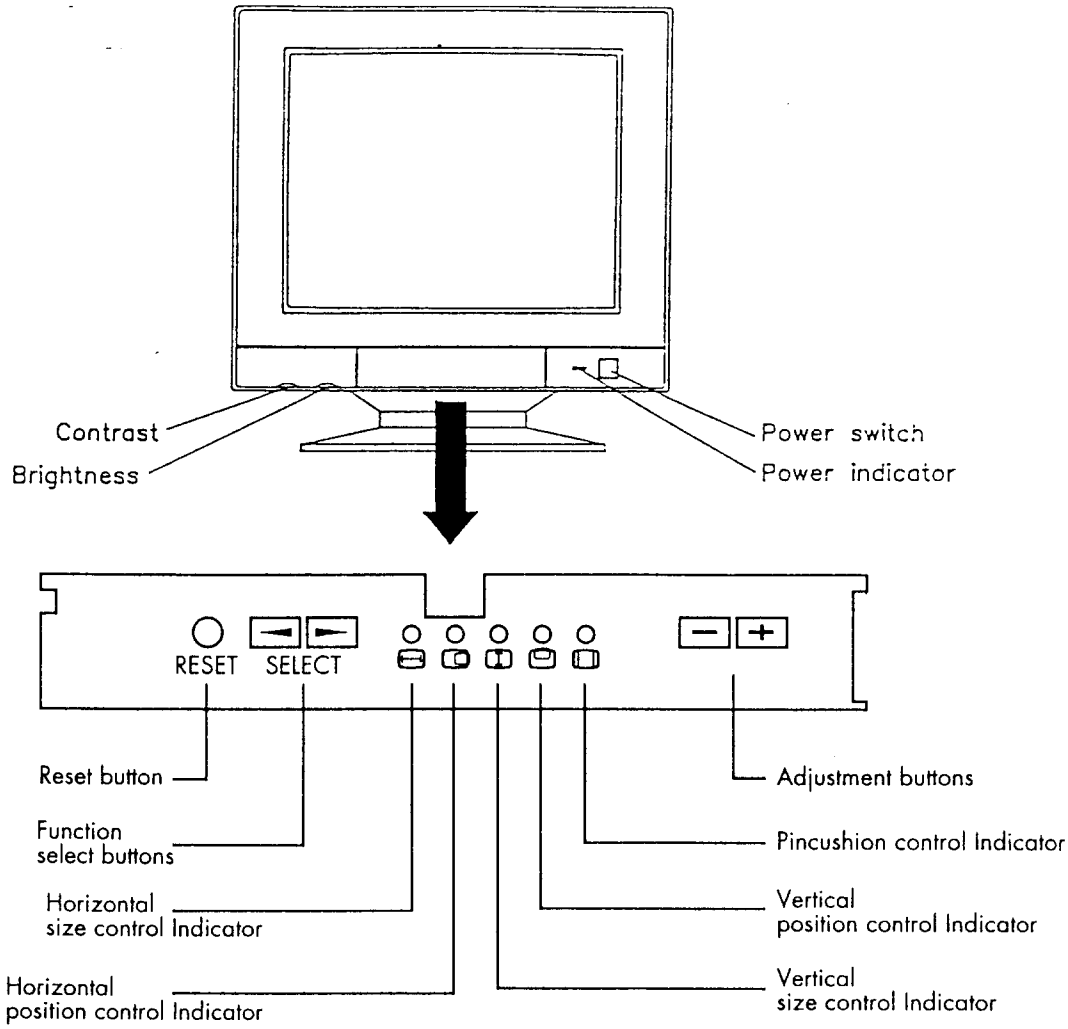
COMPOSITE SYNC



Sync Polarity: Negative

SIGNAL NAME / INPUT SIGNAL		VGA 640X350	VGA 640X400	VGA 640X480	SVGA 800X600	EVGA 1024X768	VESA 640X480	VESA 800X600	VESA 1024X768	EVGA 720X350	EVGA 720X400	EVGA 640X480	MAC II 640X480	VESA 800x600	MAC II 832X624	VESA 1024X768	640X480
HORIZONTAL	fH (kHz)	31.469	31.469	31.469	35.156	35.522	37.860	48.077	48.363	39.444	39.444	39.375	35.000	37.879	49.725	56.476	53.066
	A μs (Period)	31.778	31.778	31.778	28.444	28.151	26.413	20.800	20.677	25.352	25.352	25.396	28.571	26.400	20.110	17.707	18.840
	B μs (Pulse Width)	3.813	3.813	3.813	2.000	3.920	1.270	2.400	2.092	3.042	3.042	3.048	2.116	3.200	1.120	1.813	1.780
	C μs (Back Porch)	1.907	1.907	1.907	3.556	1.247	4.063	1.280	2.462	1.521	1.521	1.524	3.175	2.200	3.910	1.920	2.130
	D μs (Active Area)	25.422	25.422	25.422	22.222	22.806	20.317	16.020	15.754	20.281	20.281	20.317	21.164	20.00	14.520	13.653	14.22
	E μs (Front Porch)	0.636	0.636	0.636	0.667	0.178	0.762	1.120	0.369	0.507	0.507	0.508	2.116	1.00	0.559	0.320	0.71
VERTICAL	fV (Hz)	70.086	70.086	59.940	56.250	86.958	72.809	72.188	60.004	87.849	87.849	75.000	66.667	60.317	74.55	70.069	100.15
	O ms (Period)	14.268	14.268	16.680	17.778	11.486	13.735	13.853	16.666	11.383	11.383	13.333	15.000	16.579	13.413	14.272	9.985
	P ms (Pulse Width)	0.064	0.064	0.064	0.057	0.113	0.079	0.125	0.124	0.051	0.051	0.051	0.086	0.106	0.060	0.106	0.113
	Q ms (Back Porch)	1.907	1.112	1.049	0.626	0.563	0.740	0.478	0.600	1.496	0.862	0.813	1.114	0.607	0.784	0.513	0.716
	R ms (Active Area)	11.122	12.711	15.250	17.067	10.810	12.678	12.480	15.880	8.873	10.141	12.190	13.714	15.840	12.549	13.599	9.043
	S ms (Front Porch)	1.175	0.381	0.317	0.028	0	0.238	0.770	0.062	0.963	0.330	0.279	0.086	0.026	0.020	0.053	0.113
Input Signal Form		Separate Sync	Separate Sync	Separate Sync	Separate Sync	Separate Sync	Separate Sync	Separate Sync	Separate Sync	Separate Sync	Separate Sync	Separate Sync	Composite Sync	Separate Sync	Composite Sync	Separate Sync	Separate Sync
Horizontal Sync Polarity		Positive	Negative	Negative	Positive	Positive	Negative	Positive	Negative	Positive	Negative	Negative	Negative	Positive	Negative	Negative	Negative
Vertical Sync Polarity		Negative	Positive	Negative	Positive	Positive	Negative	Positive	Negative	Negative	Positive	Negative	Negative	Positive	Negative	Negative	Negative
Interlaced		No	No	No	No	Yes	No	No	No	No	No	No	No	No	No	No	No

MONITOR ADJUSTMENT CONTROLS



Reset Button

In the presetting modes, user can press this Reset button to get the factory setting values. In the non-presetting modes, the recall function is disabled.

Function Select Buttons

User can select either of the desired adjustment functions as H-Size, H-Position, V-Size, V-Position and Pincushion controls, pressing the Function Select button (◀ or ▶). When you have selected the desired function, the corresponding indicator will be lit.

Horizontal Size Control

To increase the image width, press the "+" button when the H-Size indicator is lit; to decrease the image width, press the "-" button.

Horizontal Position Control

To move the screen image to the right, press the "+" button when the H-Position indicator is lit; to move the screen image to the left, press the "-" button.

Vertical Size Control

To increase the vertical size, press the "+" button when the V-Size indicator is lit; to decrease the vertical size press the "-" button.

Vertical Position Control

To shift the screen image up, press the "+" button when the V-Position indicator is lit; to shift the screen image down, press the "-" button.

Pincushion Control

Press the "+" button to let the pincushion on the screen become more convex when the Side Pincushion Control indicator is lit; press the "-" button to let the pincushion become more concave.

Adjustment Buttons

Once you have selected your desired adjustment function, you can press the "+" button or "-" button any time to adjust the display.

Brightness Control

Selects the degree of brightness. Move the control counterclockwise to dim the screen and clockwise to make the screen brighter. A brighter screen will limit the on-screen glare and also affect the image quality.

Contrast Control

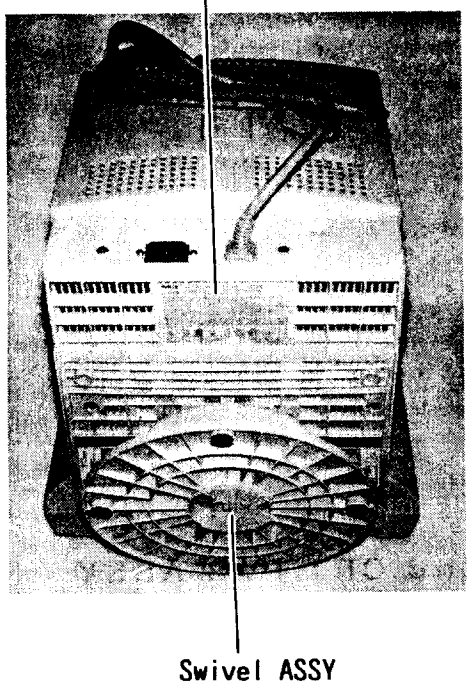
Use the contrast control to select how dark or light you would like the monitor's foreground. Move the control counterclockwise to make the screen darker, clockwise to make the screen lighter. The position of the contrast control affect the image quality.

Power Switch / Indicator

Press this switch to control power of the monitor. The power indicator lights when the monitor power is on.

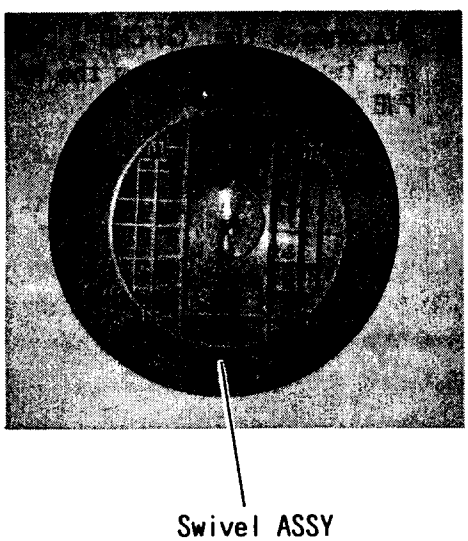
DISASSEMBLY

Tilt/Swivel ASSY

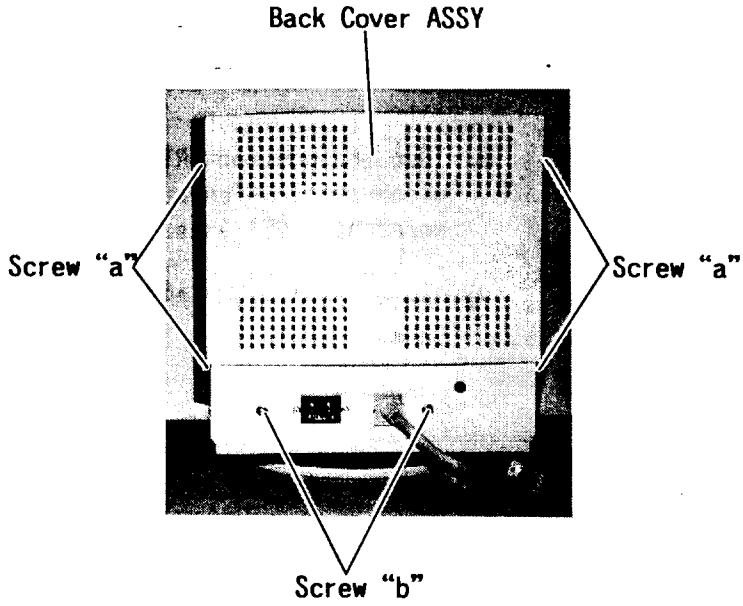


1. Turn the monitor CRT face down on a clean static free surface to prevent scratching CRT face.

2. Remove the Swivel ASSY from the Main Chassis ASSY.

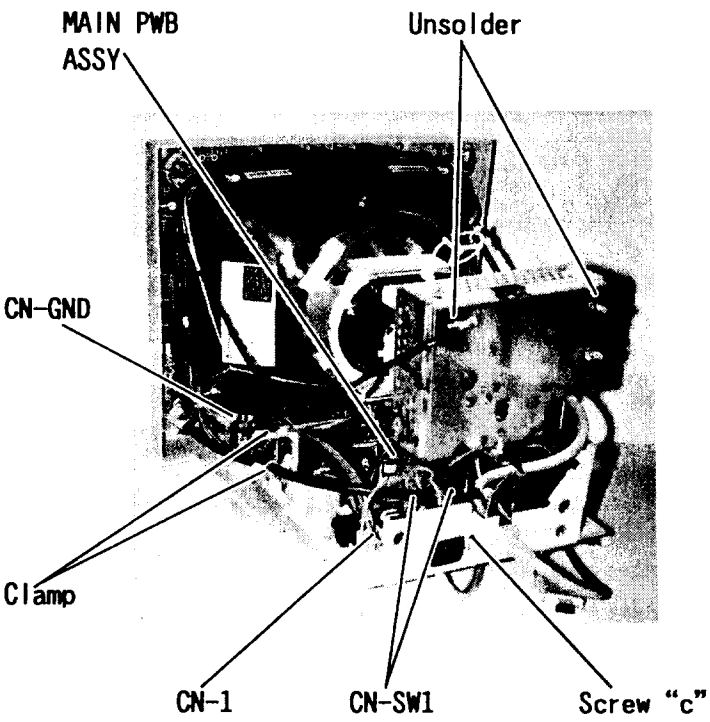


Back Cover ASSY

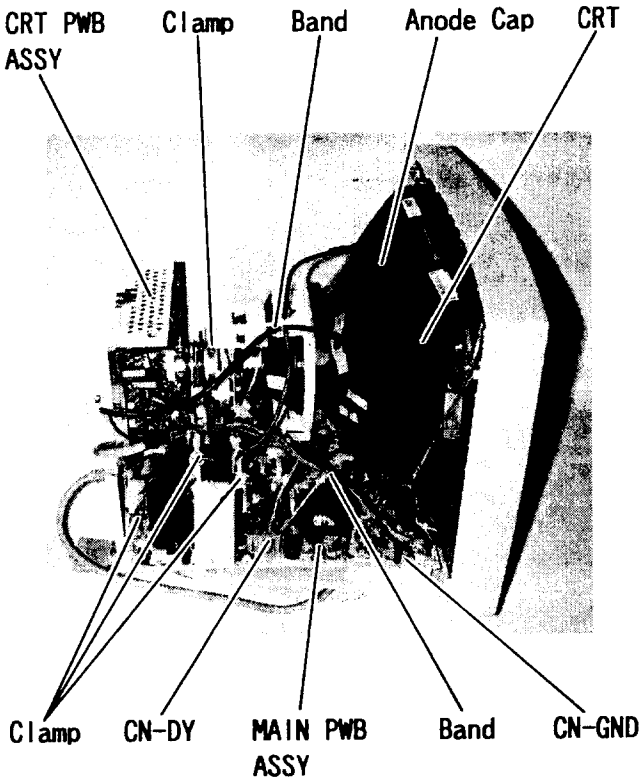


1. Remove the four screws "a".
2. Remove the two screws "b".
3. Take off the Back Cover ASSY from the monitor.

MAIN (CONTROL/LED) PWB ASSY and CRT PWB ASSY



1. Unsolder the two positions.
2. Remove the screw "c".
3. Untie the clamps.
4. Disconnect the "CN-GND", "CN-1", and two "CN-SW1" from the MAIN PWB ASSY.



5. Cut the bands.

6. Untie the clamps.

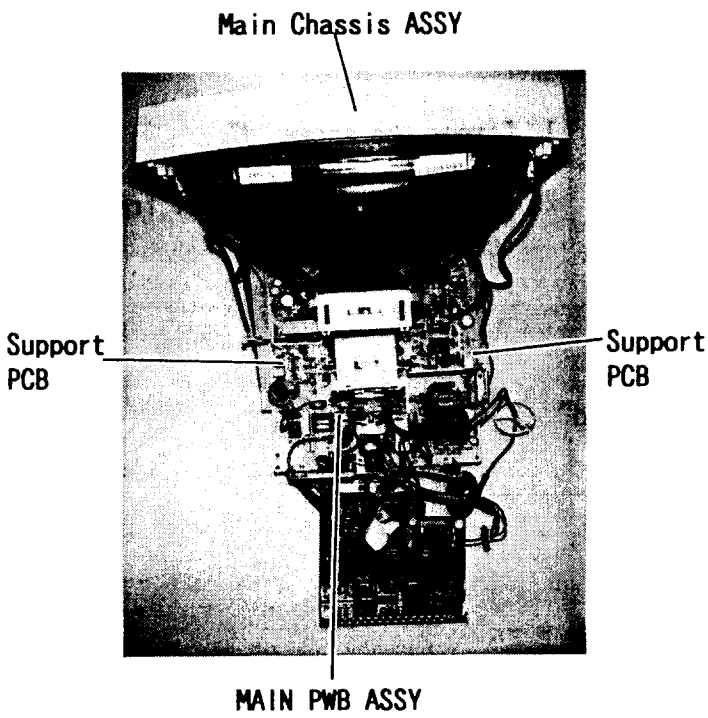
7. Disconnect the "CN-GND", "CN-DY", and "CN-6" from the MAIN PWB ASSY.

8. Disconnect the CRT PWB ASSY from the CRT.

9. Disconnect the "CN-M" and "CN-C" from the CRT PWB ASSY.

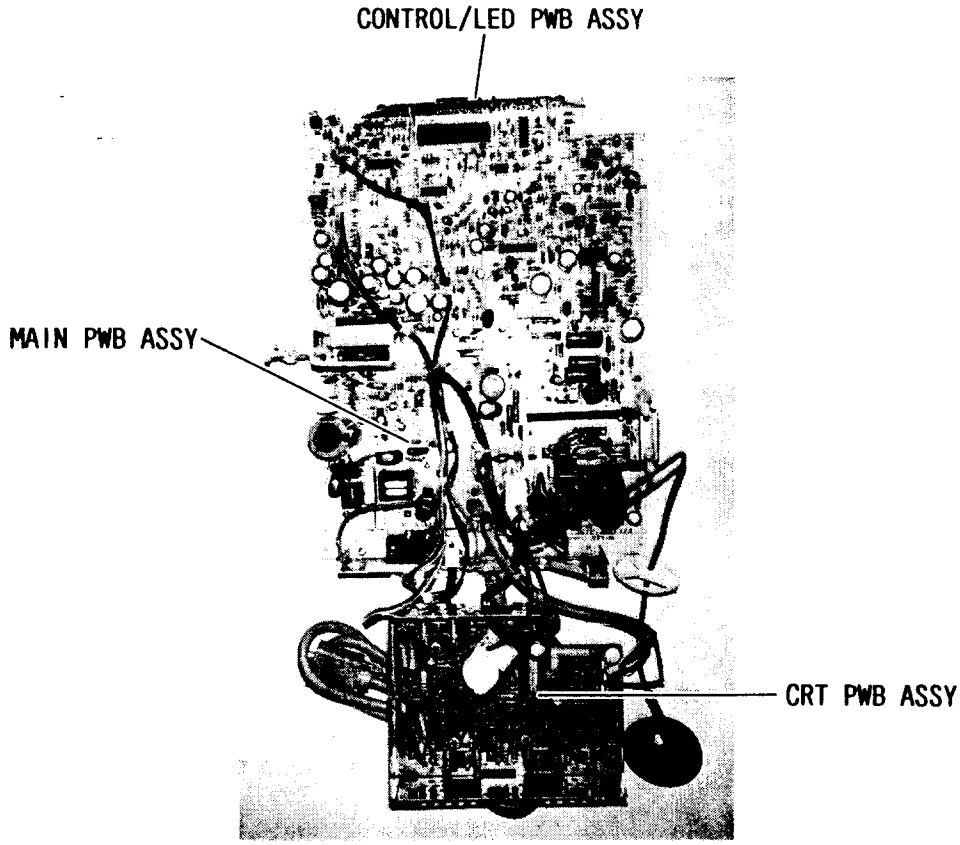
10. Disconnect the Anode Cap from CRT.

    Note :
    Carefully discharge the CRT anode potential by grounding to coating dag before removing Anode Cap.

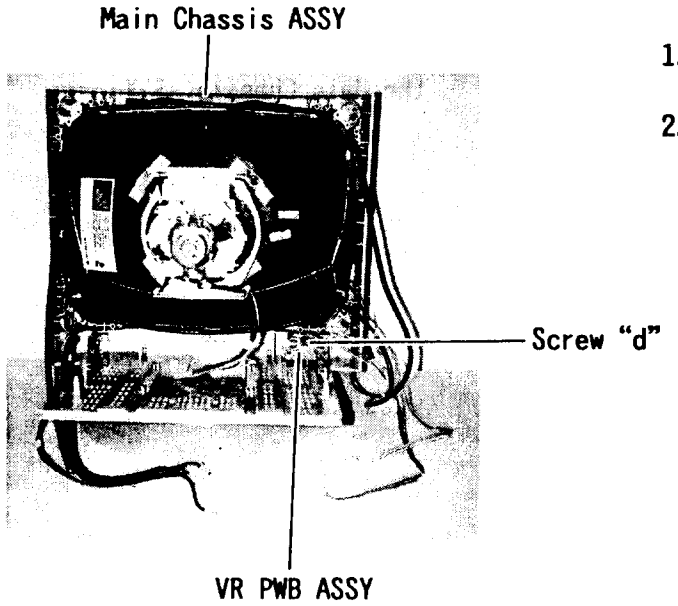


11. Remove the two support PCBs.

12. Remove the MAIN PWB ASSY from the Main Chassis ASSY.

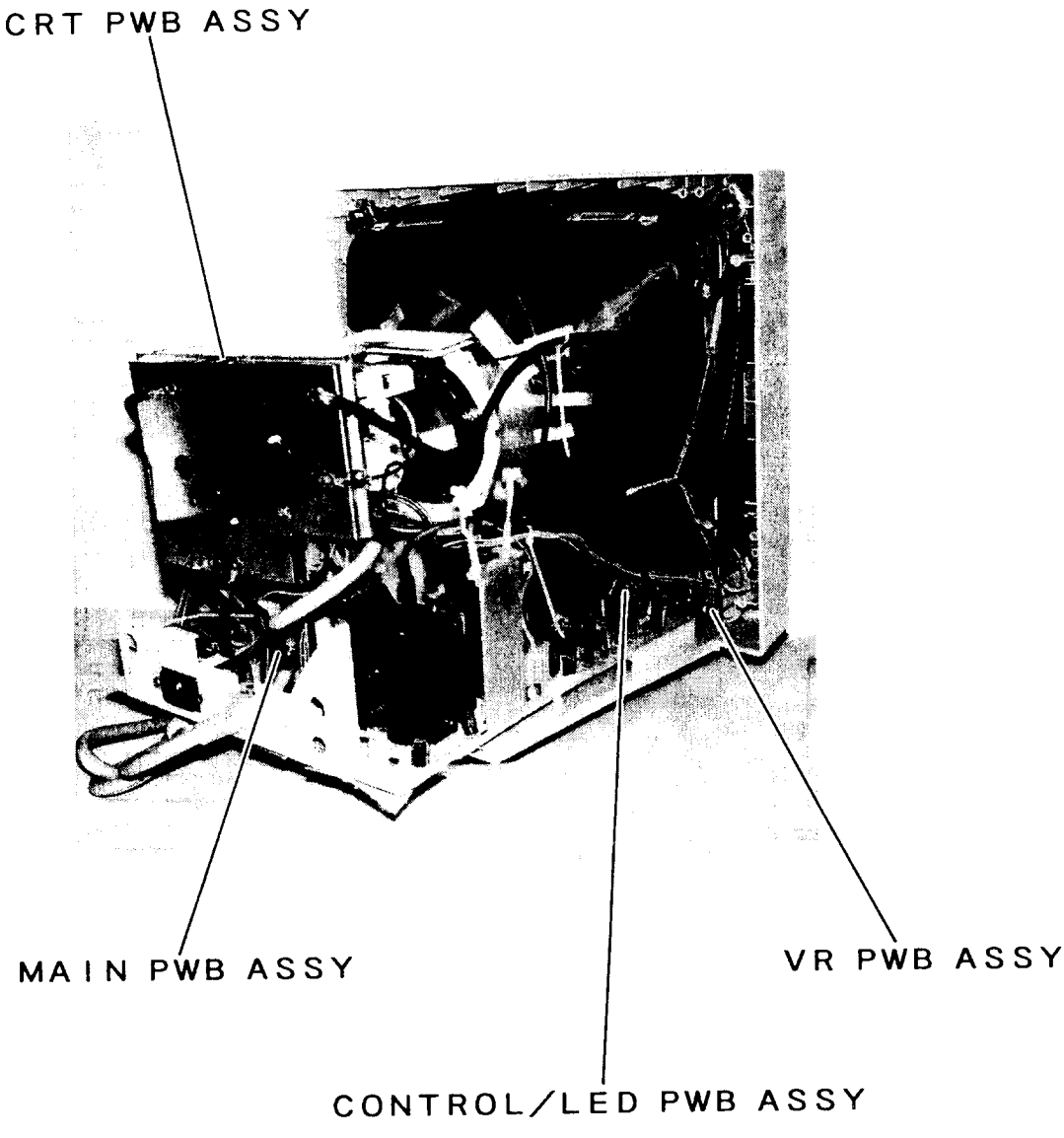


VR PWB ASSY



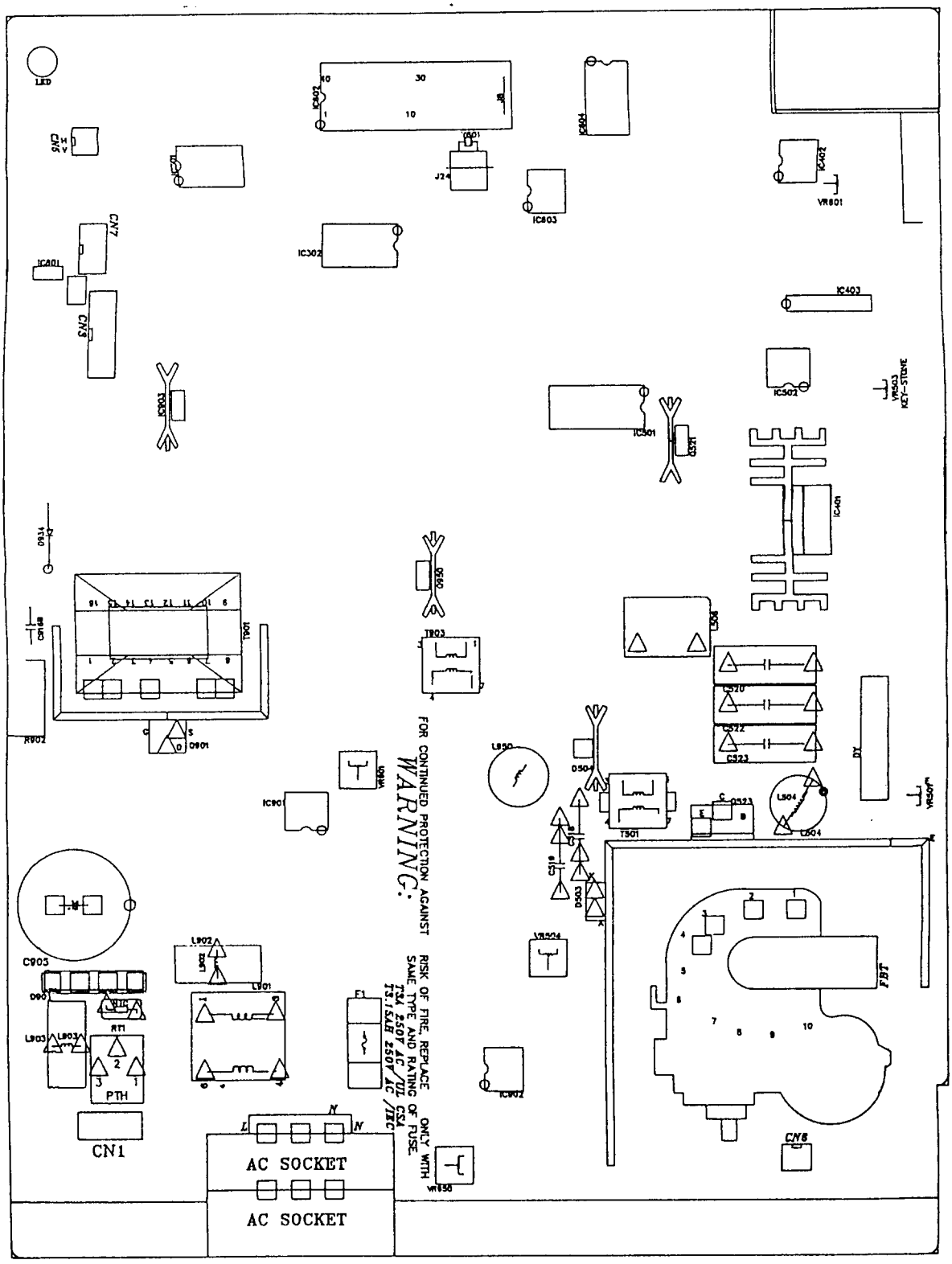
1. Remove the screw "d".
2. Take out the VR PWB ASSY from the Main Chassis ASSY.

PWB LOCATION DIAGRAM

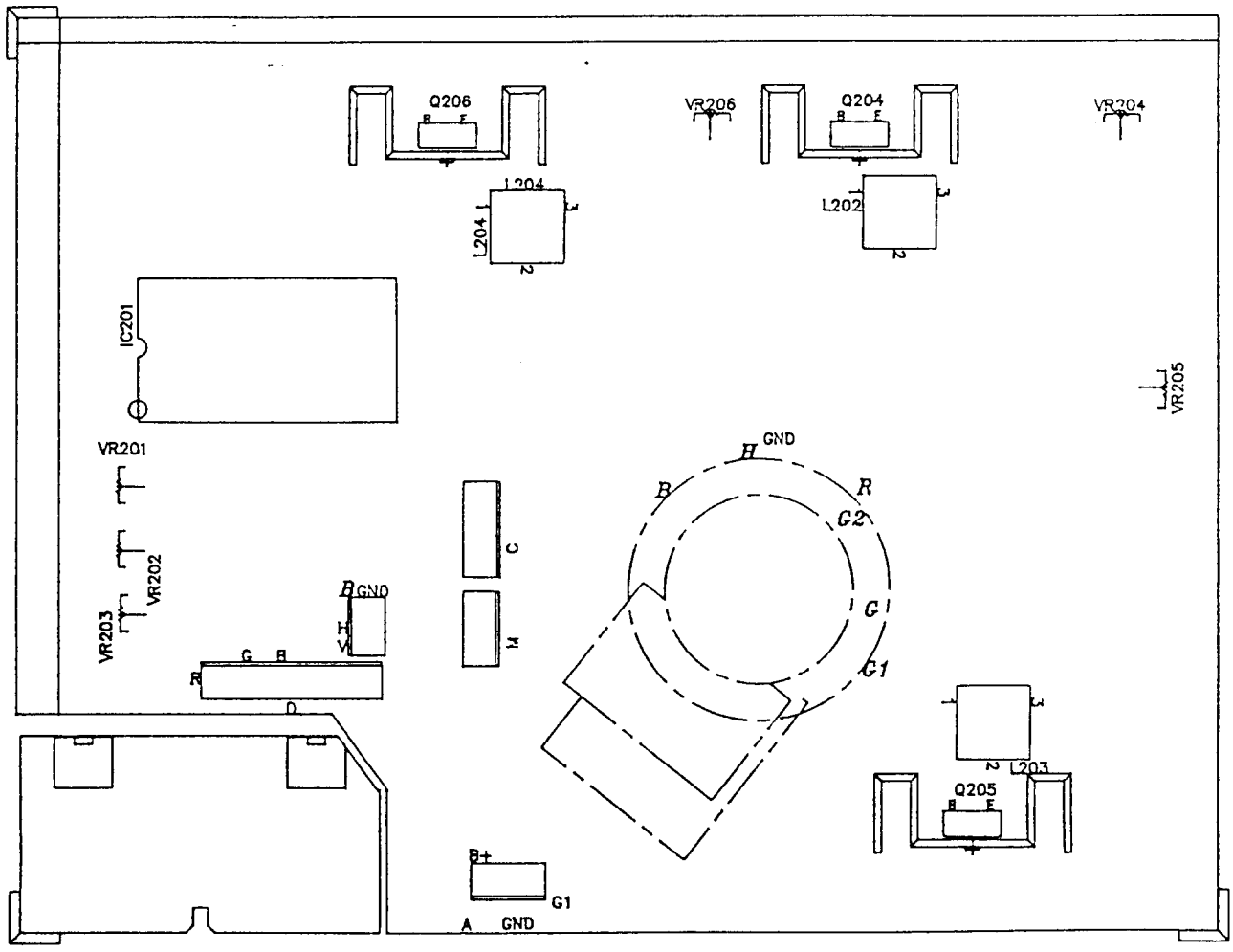


LOCATION OF ADJUSTMENT PARTS

MAIN PWB



CRT PWB


Q206
VR206
Q204
VR204
L204
L202
IC201
VR205
VR201
VR202
VR203
GND
H
B
R
G2
G
G1
C
M
G
B
R
D
L203
Q205
B+
G1
A
GND

ADJUSTMENT PROCEDURES

Adjustment Tools

1. Quantum Data 901, Leader LVG-1603 Signal Generator, or Equivalent
2. 300mm Ruler
3. Brightness Meter
4. Adjustment Tube and "-" Type Screw Driver
5. High-Voltage Probe
6. Digital Voltage Meter (DVM)
7. Degaussing Coil
8. Color Analyzer (MINOLTA CA-100), or Equivalent
9. DC Power Supply

Presetting Adjustment

1. Set Brightness and Contrast VRs to the maximum position. Set the CRT PWB VRs (VR201, VR202, VR203) clockwise to the maximum position and the other VRs (VR204, VR205, VR206) counterclockwise to the maximum position.

2. Set the MAIN PWB VRs (VR901, VR950, VR501, VR503, VR504, VR601) to the mechanical center.

3. Timing
   Unless directed otherwise, perform adjustments using Mode 15. Refer to pages 22 and 23 for Timing of Reference Signal.

4. Turn on the power switch. Adjust VR901 to enable that the 160 Vdc output voltage (D930 CATHODE) is in the range of 160 ± 0.5 Vdc. Then verify the following output voltages.

   a) 25 ± 2.0 Vdc (D933 CATHODE)
   b) 16.5 ± 1.0 Vdc (D932 CATHODE)
   c) 7.7 ± 0.5 Vdc (D934 ANODE)
   d) 80 ± 1.0 Vdc (D931 CATHODE)

5. High Voltage and Brightness Adjustment

   (a) Input mode 15 all black raster pattern.
   (b) Set the external Brightness VR and Contrast VR counterclockwise to the minimum position.
   (c) Adjust FBT screen VR finely until the raster is just visible.
   (d) Adjust VR950 to get that the anode voltage is 24 ± 0.25 kV.
   (e) Re-adjust the FBT screen VR until the raster is just visible.

6. Frequency to Voltage Adjustment

(a) Input mode 15.
(b) Adjust VR601 until the voltage of IC604 pin 2 is 6.30 ± 0.05 Vdc.
(c) Verify proper sync performance by inputting modes 1 to 16.

7. Raster Center Adjustment

(a) Input mode 15.
(b) Adjust VR501 to mechanically center the image.

8. Horizontal Width and Phase Setting

(a) Input mode 15.
(b) Press the Function Select Button to let the H-Phase LED be lit. Then press the Adjust Button ("+" or "-") to move the video pattern to the center position of the raster.
(c) Press the Function Select Button until the H-Size LED is lit. Then press the Adjust Button ("+" or "-") to get the H-Size 250 ± 2.5mm of the video pattern.

9. Vertical Height and Center Setting

(a) Input mode 15.
(b) Press the Function Select Button until the V-Size LED is lit. Then press the Adjust Button ("+" or "-") to get the V-Size 187 ± 2.5mm.
(c) Press the function Select Button until the V-Center LED is lit. Then press the Adjust Button ("+" or "-") to move the picture to the CRT mechanical center.

Final Adjustment

1. Check the High Voltage Protection Function.

   (a) Adjust VR950 until the anode voltage reaches 28 ± 0.5kV. Confirm that the high voltage protection circuit can operate to enable that the anode voltage is under 0.1kV. Turn the power off.
   (b) Re-adjust VR950 to the original position. Then turn the power on.

2. Anode Voltage Adjustment

   (a) Set the external Brightness and Contrast VRs to the minimum position. Adjust FBT Screen VR to let the raster just visible.
   (b) Adjust VR950 to enable that the CRT anode voltage is 24 ± 0.25kV.
   (c) Use the silicon glue to fix VR950.

3. F-V Adjustment

   (a) Adjust VR601 until the IC604 pin 16 voltage is 6.30 ± 0.05 Vdc.
   (b) Verify proper sync performance by inputting modes 1 to 16.
   (c) Use the silicon glue to fix VR601.

4. Picture Adjustment (H-Size, H-Phase, V-Size, V-Center and Side-Pin)

   (a) Turn the external Brightness knob to cut off position. Turn the external Contrast knob to the center position.
   (b) Put the mask on the CRT screen.
   (c) Adjust VR501 to horizontal center the image.
   (d) Adjust the picture performance of each mode from mode 1 to mode 16 according to the presetting adjustment items 8, 9 and 11 of preset adjustment.
   (e) When you finish adjustment for each mode, if you want to store the adjusted picture into the memory, press the Select Button "▶" to enable that all LEDs are lit in sequence and then hold down the key with the Recall key simultaneously.

5. Geometric Distortion Adjustment

   (a) Change timing to mode 4 crosshatch pattern.
   (b) Adjust VR503 for the trapezoid distortion.
   (c) Verify proper trapezoid distortion performance (≦ 3.0mm) for modes 1 to 16.

6. Horizontal and Vertical Linearity

Use cross-hatch pattern and set timing from mode 1 to mode 16. Check that the horizontal and vertical linearity must meet the following specifications:

Horizontal / Vertical Linearity ≦ 9%

Horizontal Linearity

$$\left| \frac{Xmax-Xmin}{Xmax} \right| X\ 100\%$$

Vertical Linearity

$$\left| \frac{Ymax-Ymin}{Ymax} \right| X\ 100\%$$

Horizontal / Vertical Linearity ≦ 7%

Horizontal Linearity

$$\left| \frac{Xx - Xave}{Xave} \right| X\ 100\%$$

Vertical Linearity

$$\left| \frac{Yx - Yave}{Yave} \right| X\ 100\%$$

7. Raster White Balance Adjustment

Warm up the unit about 30 minutes. Degauss the CRT screen, using the external degaussing coil.

(a) Input mode 15 all black raster pattern.
(b) Turn the external Brightness VR to the maximum position. Turn the external Contrast VR to the minimum position.
(c) Turn VR204, VR205, and VR206 counterclockwise to the maximum position. Adjust the Screen VR until the raster just appears slightly.
(d) Adjust VR204 (R Cut-Off), VR205 (G Cut-Off), VR206 (B Cut-Off) repeatedly until the color analyzer shows the following:

x = 0.300 +/- 0.010
y = 0.305 +/- 0.010
Y = 2.0 ± 0.2 FL (6.8 ± 0.68 cd/㎡)

(e) Re-adjust Screen VR to get the Brightness (Y) 2.0 +/- 0.2 FL (6.8 ± 0.68 cd/㎡).
Check x and y values:

x = 0.300 +/- 0.010
y = 0.305 +/- 0.010

8. Video White Balance Adjustment

(a) Input mode 15 all white raster pattern.
(b) Turn the Brightness knob to the maximum position.
(c) Turn VR201, VR202, VR203 clockwise to the maximum position.
(d) Turn the external Contrast knob to the maximum position.
(e) Adjust VR201, VR202, VR203 repeatedly until the color analyzer shows the following:

x = 0.300 +/- 0.005
y = 0.305 +/- 0.005
Y = 28.5 +1.5/-0 FL (97.7 +5.1/-0 cd/m²)

(f) Turn the Brightness knob until the raster is just cut off and turn the Contrast knob to change the screen luminance to 5 FL (17.1 cd/m²) to maximum. Make sure the color temperature meets the specifications indicated below:

x = 0.300 +/- 0.10
y = 0.305 +/- 0.10

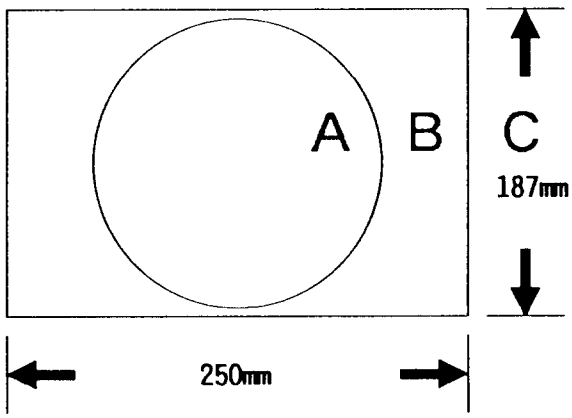
If not, adjust VR201, VR202, VR203, VR204, VR205, VR206 and VR504 again.

9. Focus Adjustment

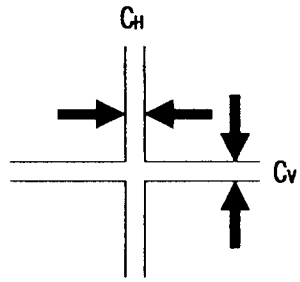
(a) Change timing to mode 7 1/4 window pattern.
(b) Turn the external Brightness knob until the raster just disappears. Turn the external Contrast knob to get the luminance 25 FL (85.7 cd/m²) in white area.
(c) Change pattern to all "$" (4 dots missing) character pattern.
(d) Turn the FBT Focus knob to let the characters at the center and the four corners of the screen look very clear.

10. Convergence Adjustment

(a) Switch timing to mode 3 crosshatch pattern.
(b) Adjust the external H-Size and V-Size to get the display size 250mm X 187mm.
(c) Set external brightness control to cutoff.
Switch pattern from crosshatch pattern to 1/4 window pattern. Then turn the external Contrast knob to get the luminance 20 FL (68.5 cd/m²).
(d) Switch pattern to crosshatch pattern. Adjust CRT magnetic ring in compliance with the following convergence specifications.



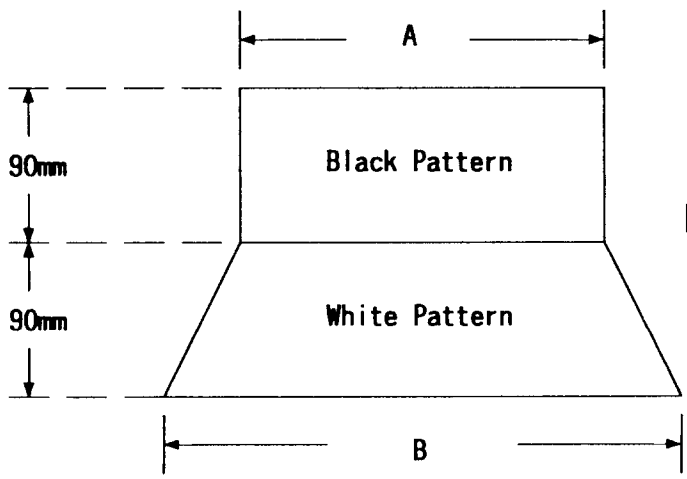
A:0.30mm
B:0.40mm Cs ≦ 0.5mm
C:0.50mm (Outside of Zone B)



C_H : Horizontal Miscon
C_V : Vertical Miscon
$C_S = \sqrt{C_H^2 + C_V^2}$

11. High Voltage Regulation

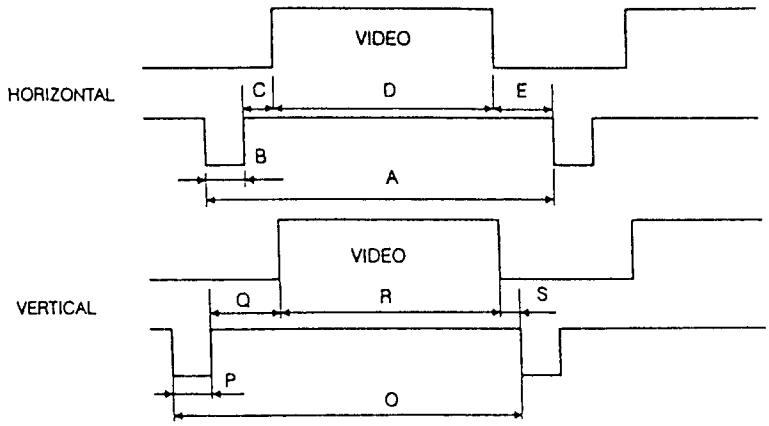
(a) Change timing to mode 15 Black and White pattern.
(b) Turn the external Brightness and Contrast knobs to the maximum luminance position.
(c) Check that the horizontal and vertical size variation must be less than 2mm.



|A-B| ≦ 2.0mm

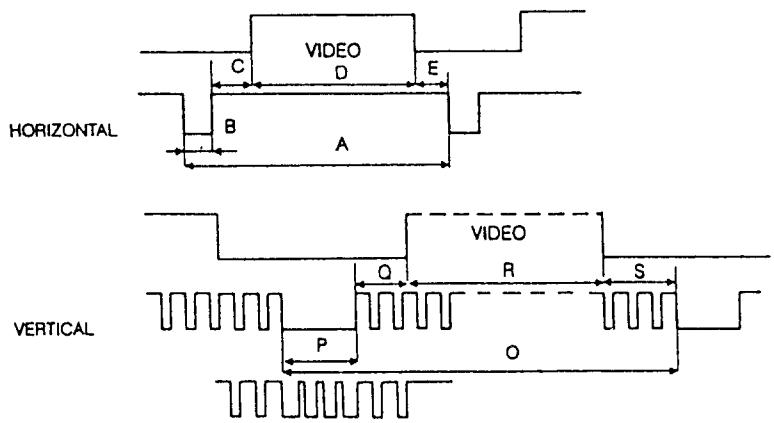
Input Signal Timing Charts

SEPARATE SYNC



Sync Polarity: Positive/Negative

COMPOSITE SYNC



Sync Polarity: Negative

Timig of Reference Signal
Signal for Using LVG−1603

	MODE NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	SIGNAL NAME	VGA350	VGA400	VGA480	800x600 (56)	8514/A	EVGA480 (VESA)	800x600 (72)	1024x768 (60)	EVGA350	EVGA400	EVGA480	MAC II	800x600 (60)	MAC II (49K)	1024x768 (70)	EVGA480 (100)
	RESOLUTION	640x350	640x400	640x480	800x600	1024x768	640x480	800x600	1024x768	720x350	720x400	640x480	640x480	800x600	832x624	1024x768	640x480
	DOT CLOCK [MHz]	28.321	28.321	25.175	36.000	44.900	31.500	50.000	65.000	35.500	35.500	31.500	30.240	40.000	57.283	75.000	45.007
	Fh [KHz]	31.469	31.469	31.469	35.156	35.522	37.860	48.077	48.363	39.444	39.444	39.375	35.000	37.879	49.725	56.476	53.066
	Fv [Hz]	70.086	70.086	59.940	56.250	86.958	72.809	72.188	60.004	87.849	87.849	75.0	66.667	60.317	74.55	70.069	100.15
H	CELL SIZE [DOT]	8	8	8	8	8	8	8	8	9	9	8	8	8	8	8	8
	TOTAL [CHR/DOT]	100/900	100/900	100/800	128/1024	158/1264	104/832	130/1040	168/1344	100/900	100/900	100/800	108/864	132/1056	144/1152	166/1328	106/848
	[μs]	31.778	31.778	31.778	28.444	28.151	26.413	20.800	20.677	25.352	25.352	25.396	28.571	26.400	20.110	17.707	18.840
	DISP [CHR/DOT]	80/720	80/720	80/640	100/800	128/1024	80/640	100/800	128/1024	80/720	80/720	80/640	80/640	100/800	104/832	128/1024	80/640
	[μs]	25.422	25.422	25.422	22.222	22.806	20.317	16.000	15.754	20.281	20.281	20.317	21.164	20.000	14.520	13.653	14.22
	FRONT [DOT]	18	18	16	24	8	24	56	24	18	18	16	64	40	32	24	32
	[μs]	0.636	0.636	0.636	0.667	0.178	0.762	1.120	0.369	0.507	0.507	0.508	2.116	1.000	0.559	0.320	0.71
	SYNC PULSE [DOT]	108	108	96	72	176	40	120	136	108	108	96	64	128	64	136	80
	[μs]	3.813	3.813	3.813	2.000	3.920	1.270	2.400	2.092	3.042	3.042	3.048	2.116	3.200	1.120	1.813	1.78
	BACK [DOT]	54	54	48	128	56	128	64	160	54	54	48	96	88	224	144	96
	[μs]	1.907	1.907	1.907	3.556	1.247	4.063	1.280	2.462	1.521	1.521	1.524	3.175	2.200	3.910	1.920	2.13
V	GELL SIZE [H]	14	16	16	12	16	16	12	12	14	16	16	16	12	16	12	16
	TOTAL [H]	449	449	525	652	408	520	666	806	449	449	525	525	628	667	806	530
	DISP [H]	25/350	25/400	30/480	50/600	24/384	30/480	50/600	64/768	25/350	25/400	30/480	30/480	50/600	39/624	64/768	30/480
	FRONT [H]	37	12	10	1	0	9	37	3	38	13	11	3	1	1	3	6
	SYNC PULSE [H]	2	2	2	2	4	3	6	6	2	2	2	3	4	3	6	6
	BACK [H]	60	35	33	22	20	28	23	29	59	34	32	39	23	39	29	38
	INTERLACE	NON	NON	NON	NON	& VIDEO	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON	NON
	POLARITY	POS/NEG	NEG/POS	NEG/NEG	POS/POS	POS/POS	NEG/NEG	POS/POS	NEG/NEG	POS/NEG	NEG/POS	NEG/NEG	NEG/NEG	POS/POS	NEG/NEG	NEG/NEG	NEG/NEG
	COMPOSITE SYNC	—	—	—	—	—	—	—	—	—	—	—	NEG	—	NEG	—	—
	COMPOSITE VIDEO	—	—	—	—	—	—	—	—	—	—	—	GREEN	—	GREEN	—	—
	CHARACTER FONT	7x9	7x9	7x9	7x9	7x9	7x9	7x9	7x9	7x9	7x9	7x9	7x9	7x9	7x9	7x9	7x9
	SERRATION	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	ON	OFF	OFF
	EQP	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

Timing of Reference Signal
Signal for Using Quantum 801C

MODE NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
SIGNAL NAME	VGA350	VGA400	VGA480	800x600 (56)	8514/A	EVGA480 (VESA)	800x600 (72)	1024x768 (60)	EVGA350	EVGA400	EVGA480	MAC II	800x600 (60)	MAC II (49K)	1024x768 (70)	EVGA480 (100)
Dot Rate (MHz)	28.320	28.320	25.176	31.960	31.968	31.496	32.016	32.112	31.950	31.950	31.500	30.240	32.040	31.825	30.936	31.953
Horizontal Rate (KHz)	31.470	31.467	31.470	35.160	35.520	37.856	48.072	48.361	39.444	39.444	39.375	35.000	37.872	49.725	56.659	53.066
Vertical Rate (Hz)	70.09	70.08	60.06	56.26	86.96	72.80	78.18	59.85	87.849	87.849	75.000	66.67	60.31	74.55	70.04	100.15
H Dots/Char	8	8	8	9	9	8	9	8	9	9	8	8	9	8	6	7
H Total	100	100	100	101	100	104	74	83	90	90	100	108	94	80	91	86
H Chracters	80	80	80	79	81	80	57	63	72	72	80	80	71	58	70	65
H Drive Delay	82	82	82	81	82	83	61	64	74	74	82	88	75	60	77	68
H Drive Width	12	12	12	7	14	5	9	4	12	12	12	8	11	4	6	8
V Lines/Char	10	10	10	10	12	12	12	12	10	10	10	10	12	12	8	12
V Total	449	449	524	625	817	520	666	808	449	449	525	525	628	667	809	530
V Rows	35	40	48	60	64	40	50	64	35	40	48	48	50	52	96	40
V Drive Delay	39	41	49	60	64	41	53	64	39	41	49	48	50	52	96	40
V Drive Width	2	2	2	2	4	3	6	4	2	2	2	3	4	3	2	6
V Step Width	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2	3
OP 1 (Comp Sync)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OP 2 (V Step)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OP 3 (H Drive)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
OP 4 (V Drive)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
OP 5 (Comp Sync P)																
OP 6 (V Step P)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OP 7 (H Drive P)	0	1	1	0	0	1	0	1	0	1	1	1	0	1	1	1
OP 8 (V Drive P)	1	0	1	0	0	1	0	1	1	0	1	1	0	1	1	1
OP 9 (Interlace)	0	0	0	0	3	0	0	0	0	0	0	1	0	1	1	0
OP 10 (Video Mode)	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	1
OP 11 (Duty Cycle)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OP 12 (Clock Phase)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OP 13 (Video P)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OP 14 (H Skew)																
OP 15 (V Skew)																
OP 16 (Cursor)																

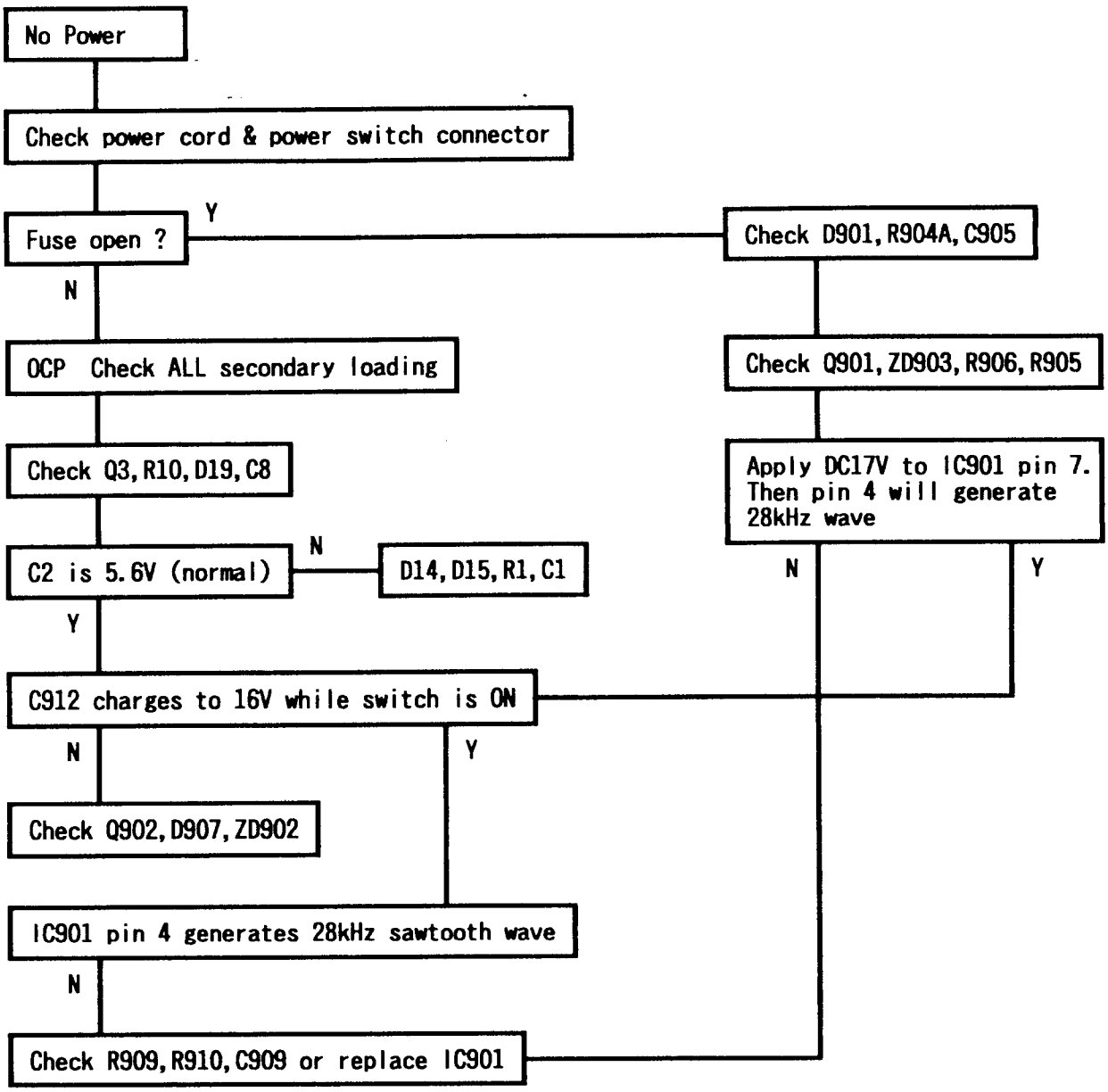
TROUBLE SHOOTING

Refer to the User Manual's trouble shooting section before using this chart.

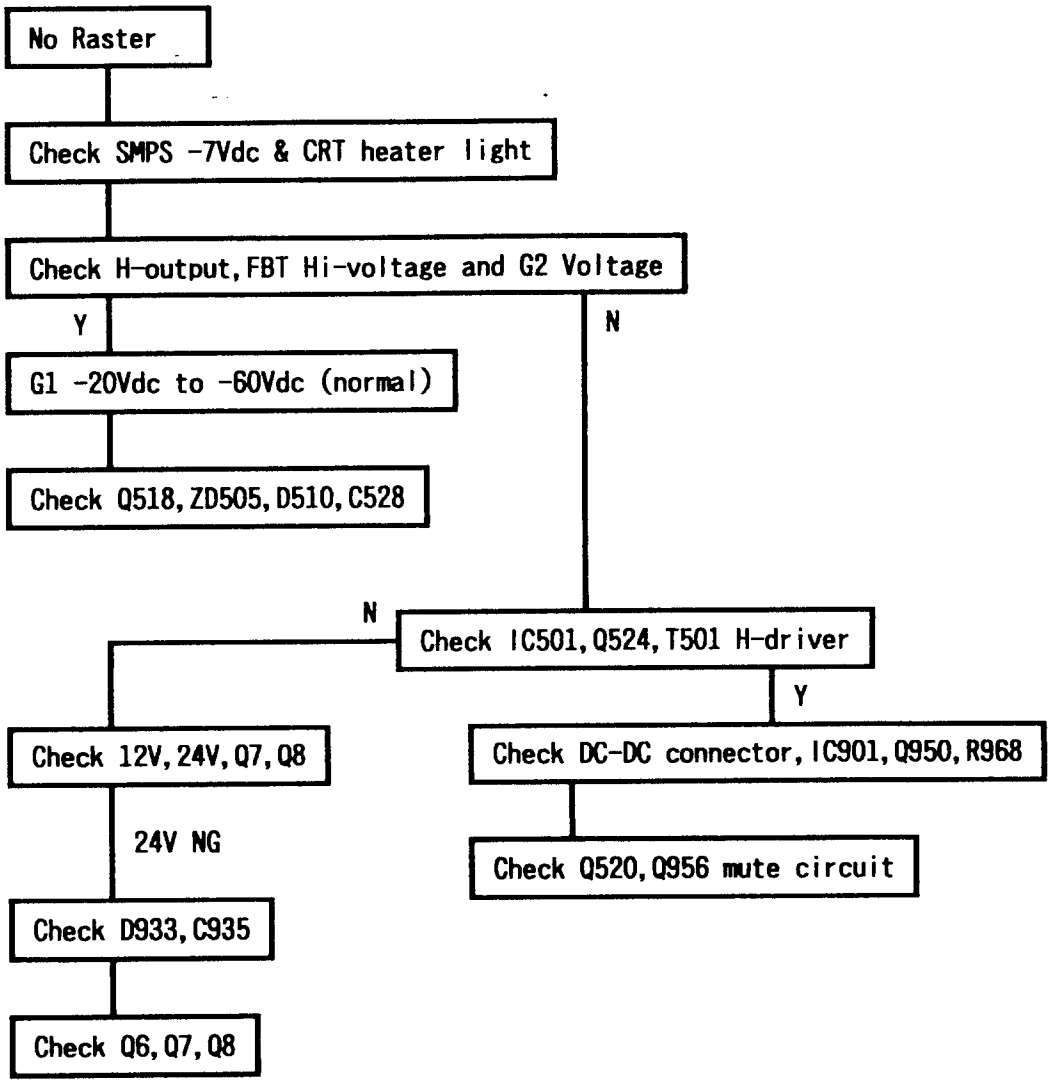
TABLE OF CONTENTS

		Page
1.	NO POWER	25
2.	NO RASTER	26
3.	NO VIDEO	27
4.	NO VERTICAL SCAN (only a horizontal line)	27
5.	HORIZONTAL NO HOLD	28
6.	SIDE PIN & H-SIZE CONTROL FAILURE	28

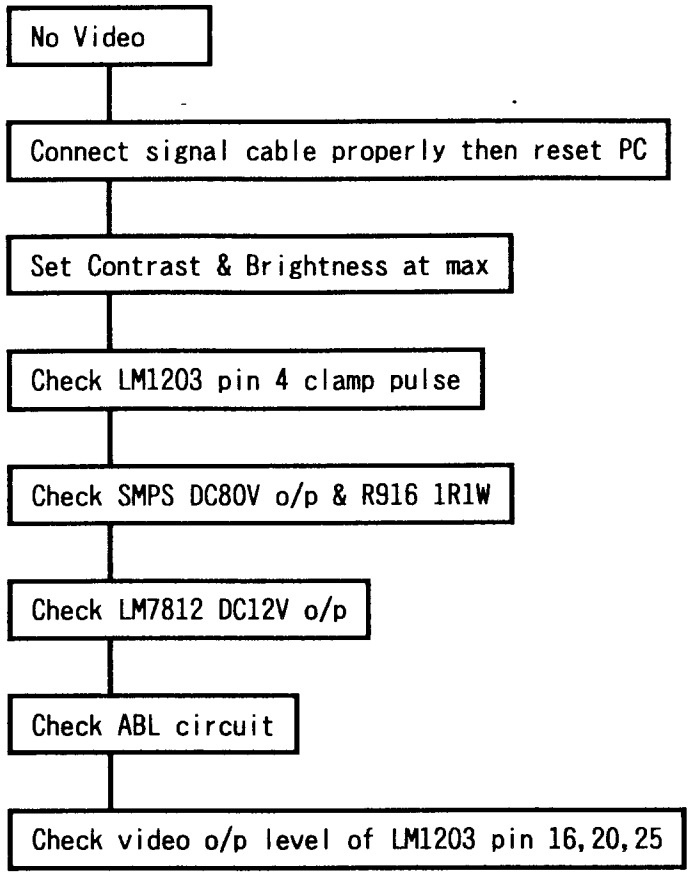
1. NO POWER


No Power
Check power cord & power switch connector
Fuse open ?
Y
N
Check D901, R904A, C905
OCP Check ALL secondary loading
Check Q901, ZD903, R906, R905
Check Q3, R10, D19, C8
Apply DC17V to IC901 pin 7. Then pin 4 will generate 28kHz wave
C2 is 5.6V (normal)
N
D14, D15, R1, C1
N
Y
Y
C912 charges to 16V while switch is ON
N
Y
Check Q902, D907, ZD902
IC901 pin 4 generates 28kHz sawtooth wave
N
Check R909, R910, C909 or replace IC901

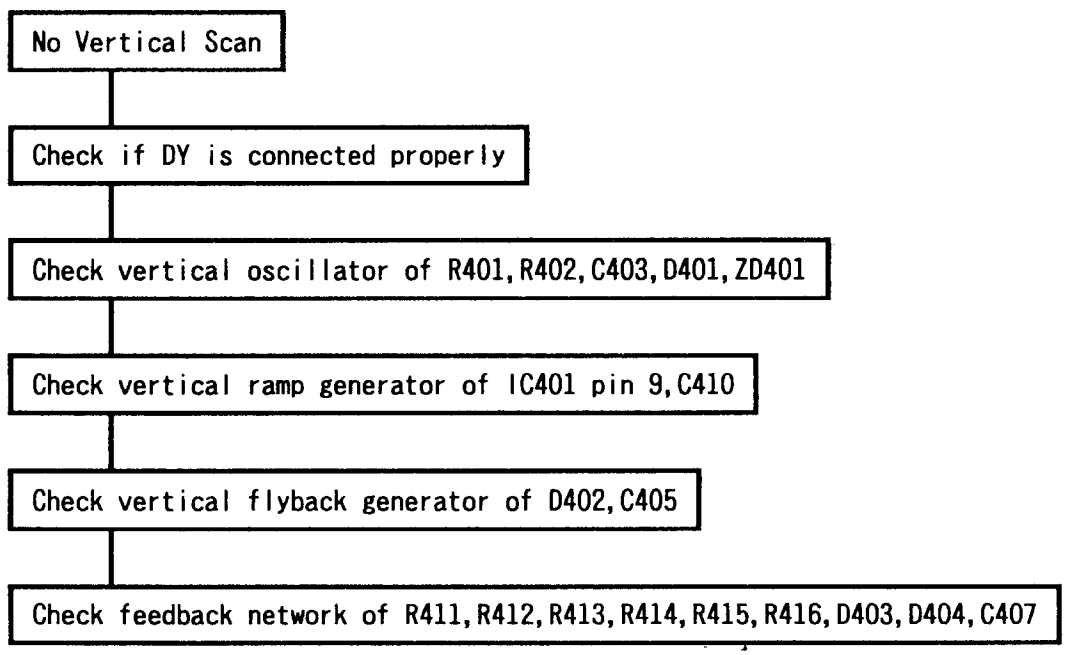
2. NO RASTER


No Raster
Check SMPS -7Vdc & CRT heater light
Check H-output, FBT Hi-voltage and G2 Voltage
Y
N
G1 -20Vdc to -60Vdc (normal)
Check Q518, ZD505, D510, C528
N
Check IC501, Q524, T501 H-driver
Y
Check 12V, 24V, Q7, Q8
Check DC-DC connector, IC901, Q950, R968
24V NG
Check Q520, Q956 mute circuit
Check D933, C935
Check Q6, Q7, Q8

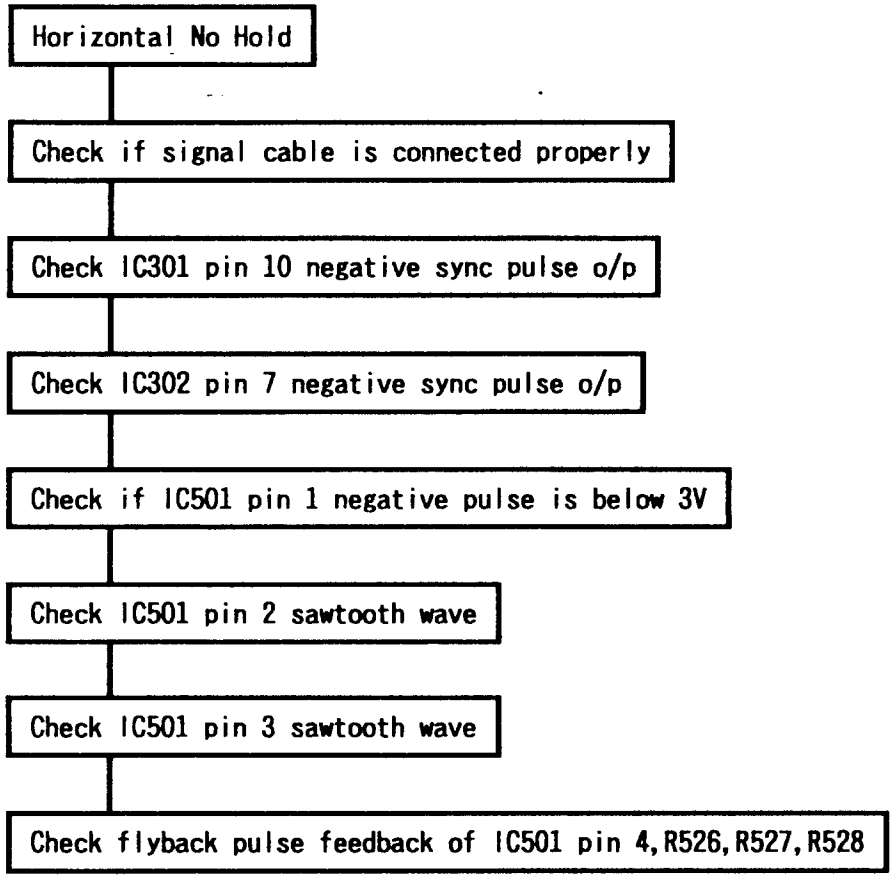
3. NO VIDEO


No Video
Connect signal cable properly then reset PC
Set Contrast & Brightness at max
Check LM1203 pin 4 clamp pulse
Check SMPS DC80V o/p & R916 1R1W
Check LM7812 DC12V o/p
Check ABL circuit
Check video o/p level of LM1203 pin 16,20,25

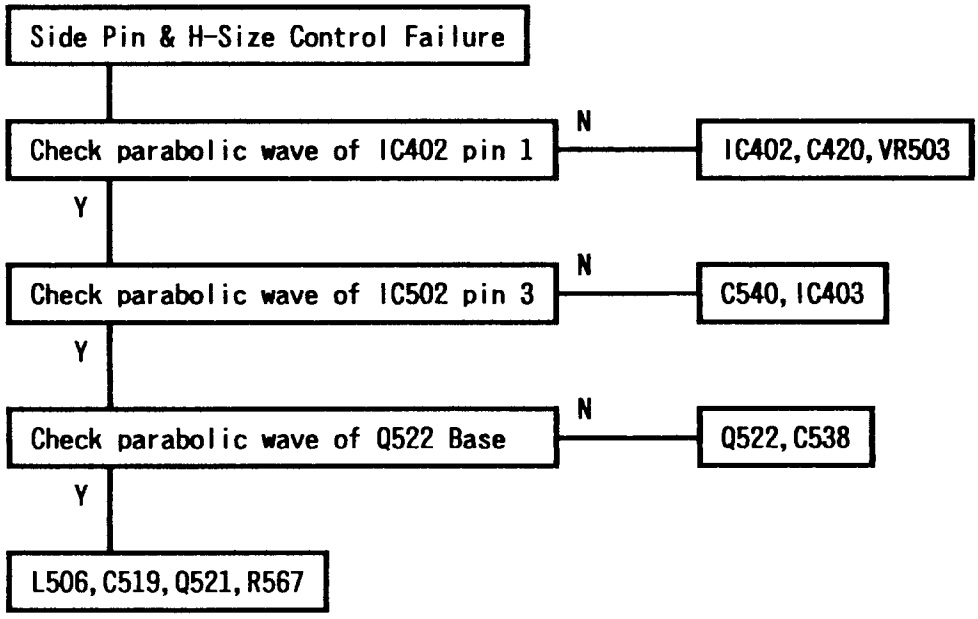
4. NO VERTICAL SCAN (only a horizontal line)


No Vertical Scan
Check if DY is connected properly
Check vertical oscillator of R401,R402,C403,D401,ZD401
Check vertical ramp generator of IC401 pin 9,C410
Check vertical flyback generator of D402,C405
Check feedback network of R411,R412,R413,R414,R415,R416,D403,D404,C407

5. HORIZONTAL NO HOLD


Horizontal No Hold
Check if signal cable is connected properly
Check IC301 pin 10 negative sync pulse o/p
Check IC302 pin 7 negative sync pulse o/p
Check if IC501 pin 1 negative pulse is below 3V
Check IC501 pin 2 sawtooth wave
Check IC501 pin 3 sawtooth wave
Check flyback pulse feedback of IC501 pin 4, R526, R527, R528

6. SIDE PIN & H-SIZE CONTROL FAILURE



CIRCUIT DESCRIPTION

TABLE OF CONTENTS

Page

A. SMPS 30

1. Line Filter and Rectification Circuit 31
2. Power Transfer 32
3. DC-DC Converter Circuit 33
4. Output Rectification Circuit 34

B. DEFLECTION AND VIDEO 35

1. Vertical Oscillation and Output Circuit 35
2. Horizontal Oscillation Circuit 36
3. Horizontal Drive and Output Circuit 37
4. Pincushion Correction and Horizontal Width Control Circuit 38
5. Digital Control Circuit 39
6. Sync Processor Circuit 40
7. Blanking and Spot Killer Circuit 41
8. Auto-Alignment Control 42
9. Video Preamplifier 43
10. Video Output Amplifier 44

CIRCUIT DESCRIPITION

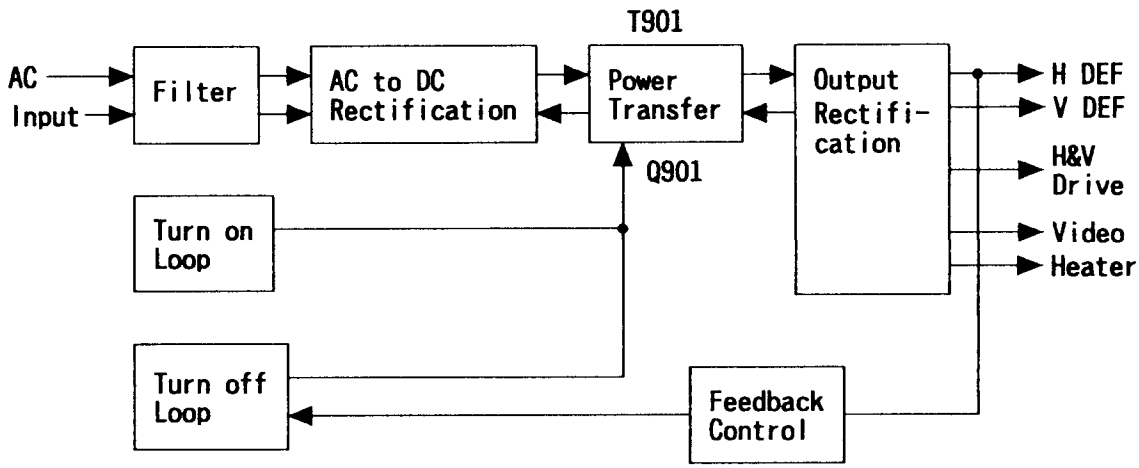
A. SMPS

General Information

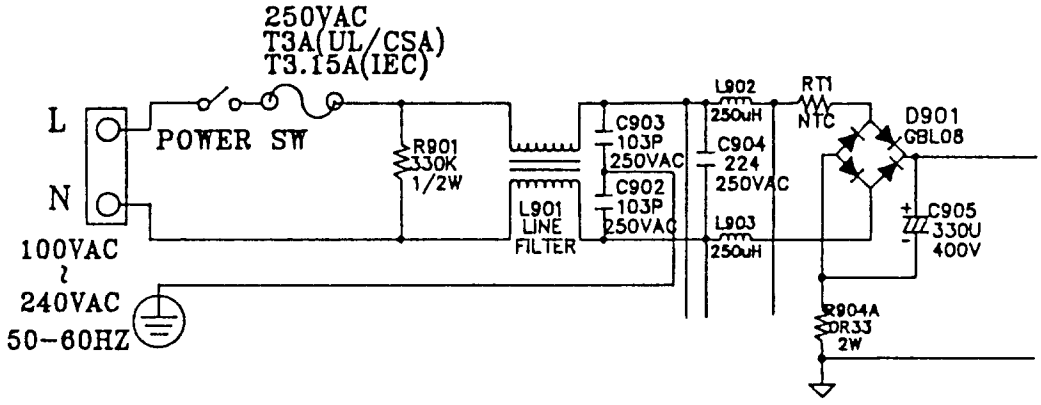
The power supply of the JC-1432VMA/B/R is a switching mode power supply which can operate in the AC voltage range 100-240V, without setting any switches. Also, it is a PWM converter, without any sync signal taken from the horizontal circuit, and it has a transformer which can isolate the system from power and transfer energy. The switching frequency is variable according to the AC input voltage and output load current.

Basically, the power supply has over-voltage protection in the output port and overcurrent protection in the primary to protect itself from damage.

Block Diagram



1. Line Filter and Rectification Circuit



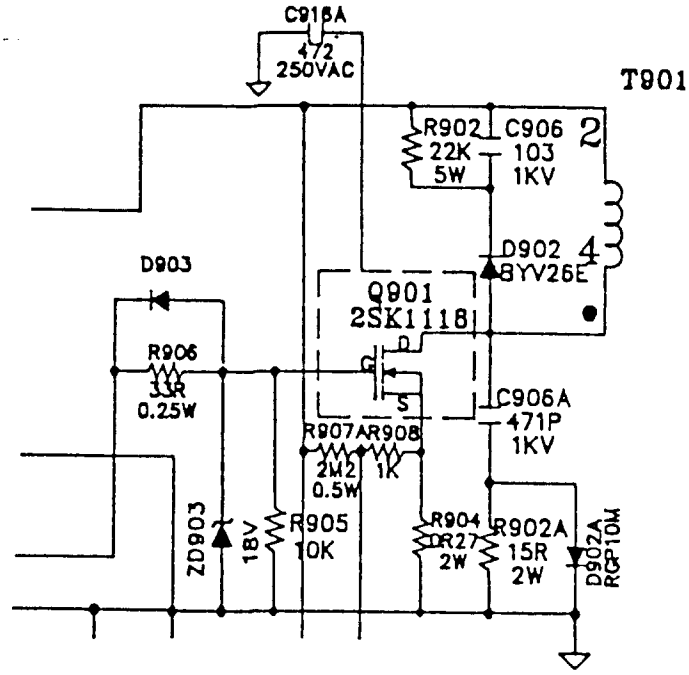
The filter is inserted between AC line input and power supply to isolate the monitor from the line noise and to reduce the switching noise coming from the high speed switching transistor and other noise in the system, in compliance with the universal standard.

The filter circuits are composed of T type and low pass filters for reducing all noises coming from AC input and system itself. The type filter consists of C902 and L901 and the T type filter consists of L902 and L903. The filter circuits can reduce the noise according to different band.

For AC input port L901 C902 and L901 C903 are two low-pass filters to bypass the noise from L and N to the ground, which can reduce the noise of common mode. L901 C904 can reduce the differential mode noise. For system itself, L902 C903 and L903 C902 activate the same function for the noise of common mode. L902 C904 L903 C904, also have the same function for the noise of differential mode.

The full-wave rectification circuit can store the energy in C905 for power transfer.

2. Power Transfer



The energy stored in C904 provides T901 with the power energy and transmission. T901 is designed as an isolation transformer to separate the AC input from the DC output. Q901 is a High-speed switch to store and release the energy of T901. Q901 and T901 are used to transfer power.

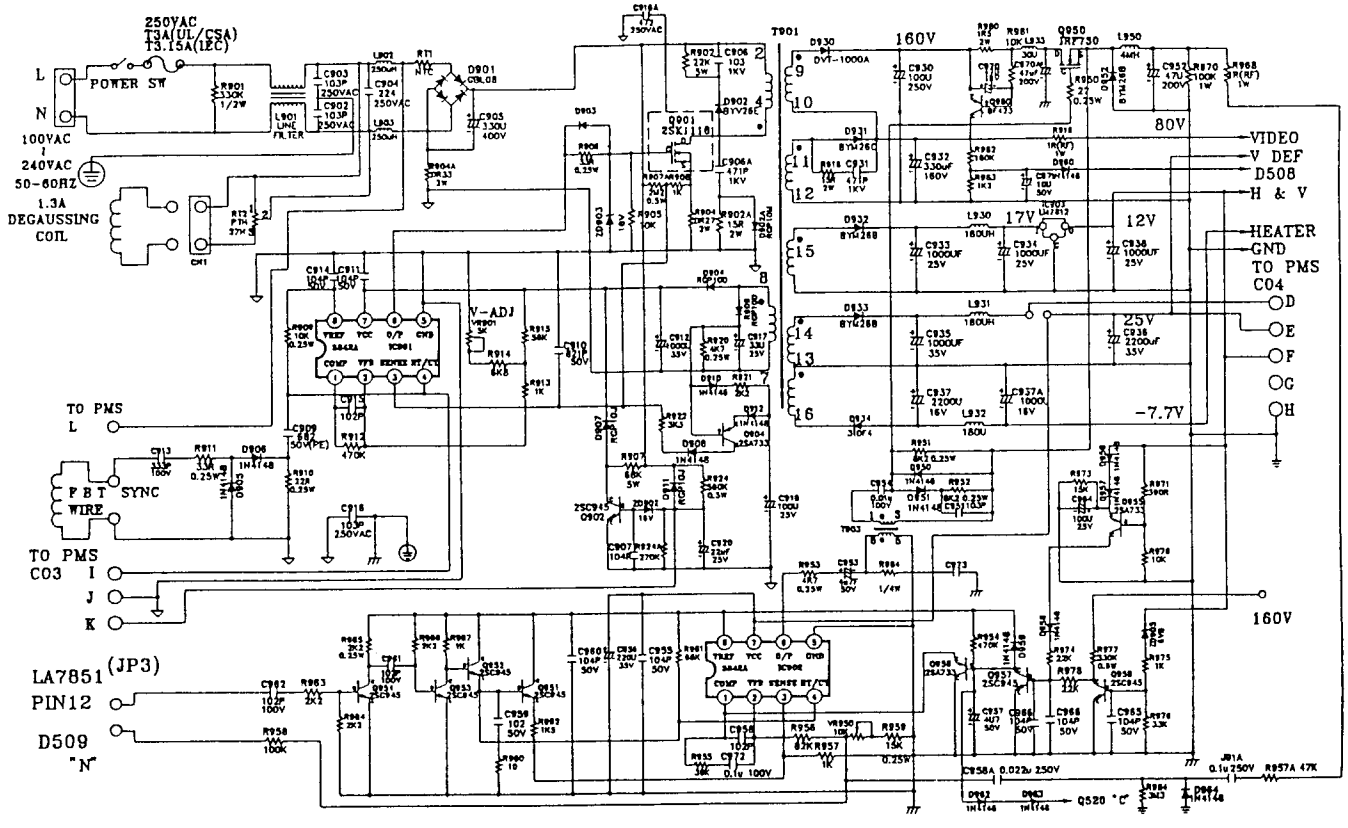
When Q901 is turned on, a current loop is made starting from pin 2, pin 4, Q901 and R904 to ground, then the energy will be stored in T901. On the other side of T901, since the diode cannot be turned on to charge the capacitor because of the pole of wire winding, the energy can be stored in T901.

When Q901 is turned off, the current loop is disabled. At that time, there will be a counter-electromotive force between the wire winding and the pole of voltage to turn on the diode and charge the capacitor, so the energy will be released.

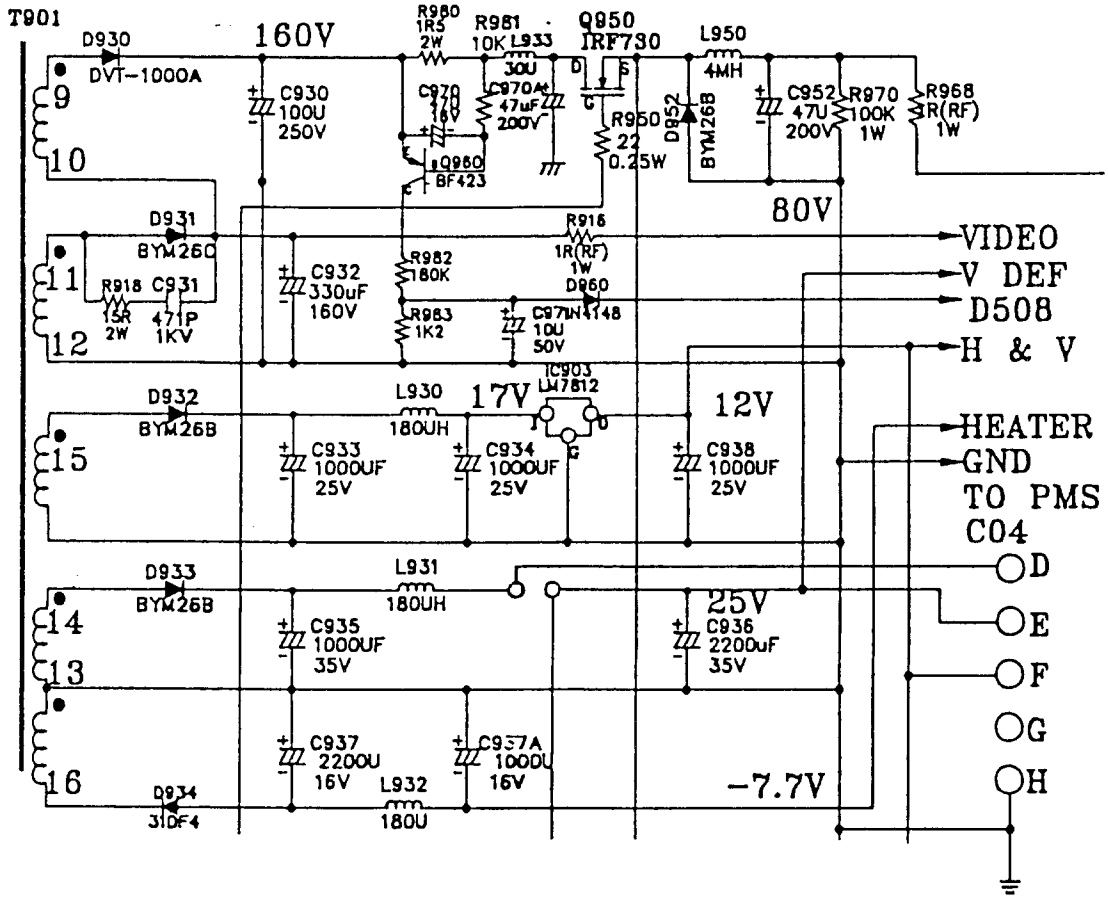
Storing and releasing energy task can be completed in a very short time and it can be done repeatedly in the frequency at least 30kHz. This task is controlled by Q901 and control circuit. R902, C906, D902, C906A and R902A are connected to the collector of Q901 to form a snub circuit, which can prevent Q901 from damage and reduce the switching noise.

3. DC-DC Converter Circuit

The monitor uses a high-efficiency DC-DC converter for different working frequency to provide suitable voltage to the horizontal output and high voltage circuit. Since the DC-DC converter works in forward type, the input voltage is higher than the output voltage. In case that Q950 is ON, DC 160V will be charged to L950 and C952 through Q950. When Q950 is OFF, the energy stored in L950 will be released to C952 through D952. So, no matter whether Q950 is ON or not, current flows from L950 to C952 to generate a smaller ripple voltage. IC902 (HA17384) is a PWM controller, whose pin 6 output is isolated by T903 driver X'Fmer then will be connected to Q950 so as to keep the correct bias between the Gate and Source of Q950. After the output of FBT pin 6 is rectified and filtered, a DC voltage will be obtained, which is direct proportion to the anode voltage. Connect the voltage of C527A to the error amplified of IC902 pin 2 to control the duty cycle of Q950 for voltage regulation.



4. Output Rectification Circuit



The output rectification circuit is used to store the energy coming from T901 and smooth the output ripple voltage. The diode acts as a switch -- When the positive voltage is generated in the second side of T901, the diode will be activated to charge the capacitor so the energy can be stored in it. Then the filter will reduce the noise of the high frequency and ripple voltage. When the negative voltage appears, the diode cannot function to prevent the capacitor from damage caused by the negative voltage.

B. DEFLECTION AND VIDEO

1. Vertical Oscillation and Output Circuit

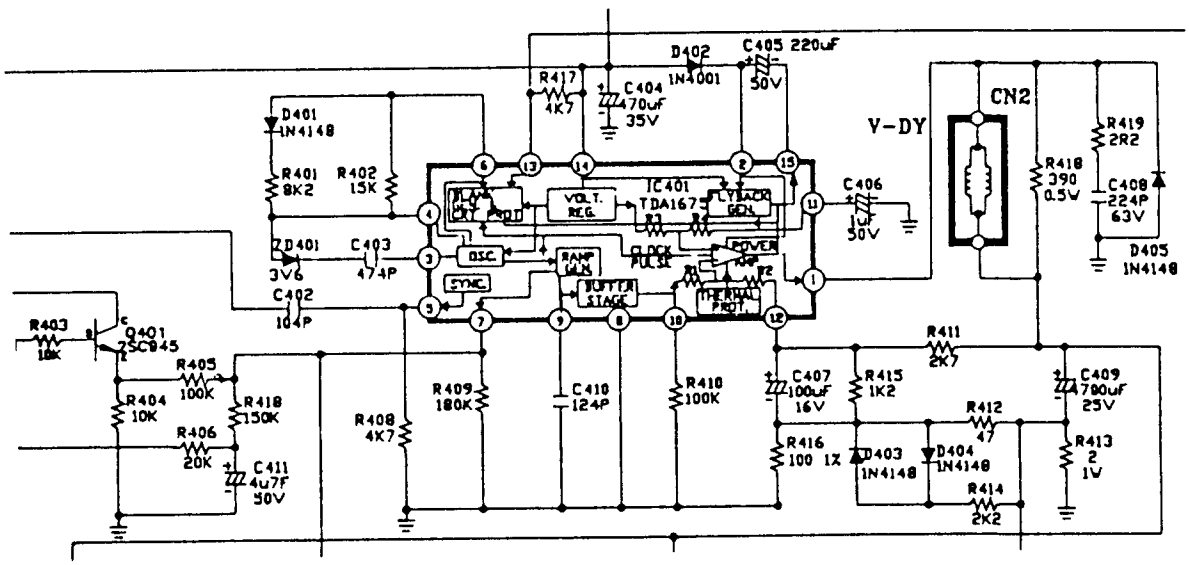
RC oscillation circuit is built by R401, R402, C403, D401 and ZD401 and will become synchronous after triggering by the vertical sync signal which is input to TDA1675 pin 5.

Pin 9 and C410 constitute a sawtooth generator, which has the same frequency as RC oscillation circuit. The current coming from pin 7 controls the voltage of this generator. The more the current rises, the higher the voltage goes.

The sawtooth waveform outputs the sawtooth current to the vertical deflectional yoke by way of the internal current amplification of TDA1675 for vertical scanning.

Q403 and Q404 constitute a low output impedance push-pull circuit, whose DC level is adjusted by IC402. The DC level is connected to V-DY to change the center point of vertical scanning.

To save the vertical retrace time, the internal switch of C405, D402 and TDA1675 constitute a double voltage circuit. During vertical retrace, there will be 48 Vdc (that just doubles 24 Vdc) imposed on V-DY.

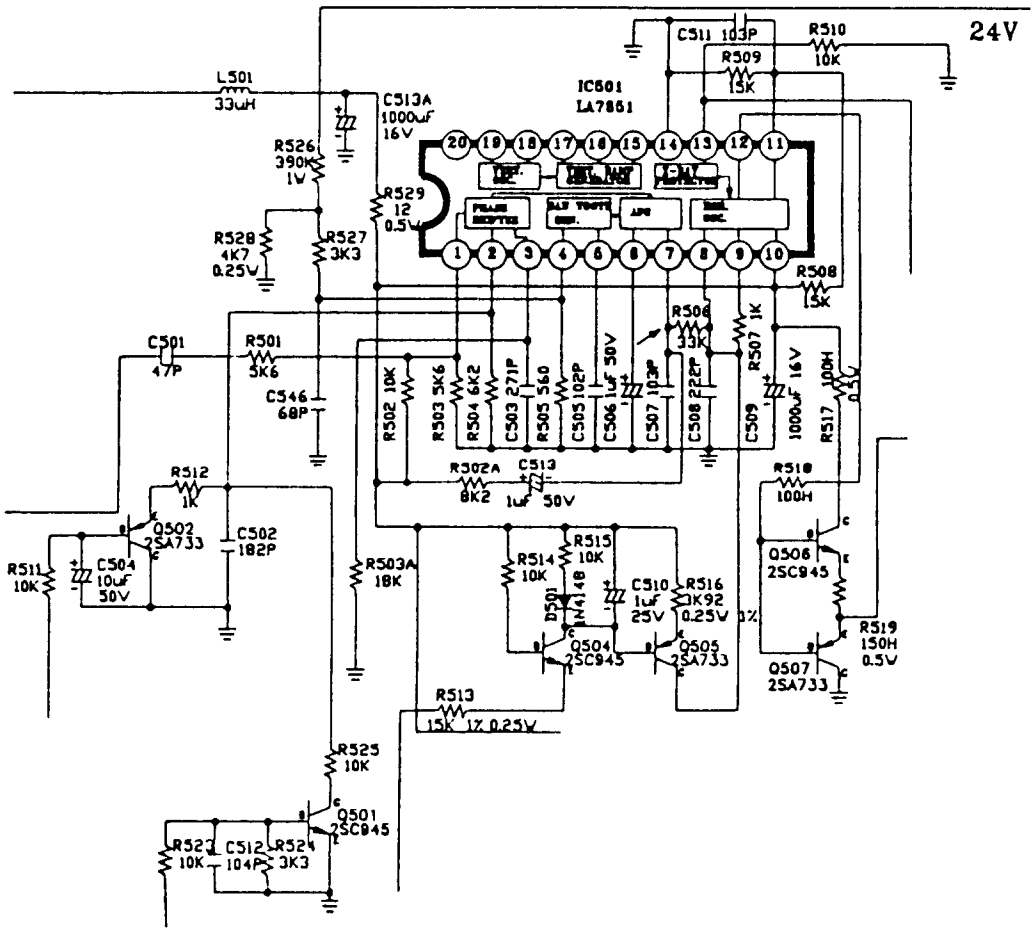


2. Horizontal Oscillation Circuit

The horizontal waveform is obtained from LA7851 pin 1 to drive the phase shifter, made by two monostable multivibrators. The first monostable multivibrator is a leading edge trigger type and another one is a tail edge trigger type. Finally, a delayed sync signal will be output to the AFC circuit. The time constants of R504 and C502 and current passing through Q502 can control the delayed time for output signal.

The oscillation circuit is made by R516, Q505 and C508. The current which controls Q505 can change the frequency of horizontal oscillation.

IC604 TDA8444 pin 16 is the output of horizontal F/V. The higher the frequency rises, the lower the output voltage becomes. The voltage can be connected to Q504 through R513 for DC level transfer then it is connected to Q505 Base. D501 is used for temperature compensation. Once the voltage of Q505 Base is higher, the output current of the collector will become more and the oscillation frequency will be higher.



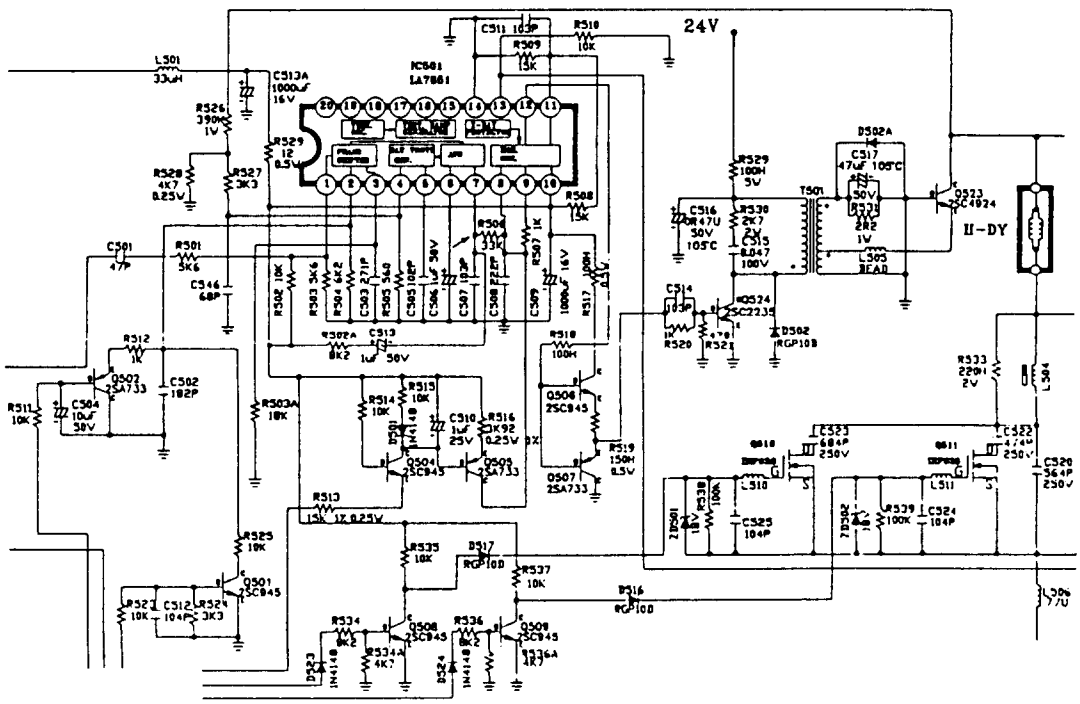
3. Horizontal Drive and Output Circuit

The output of LA7851 pin 12 is connected to the push-pull buffer composed of Q506 and Q507 to relieve the load of LA7851. The output of buffer is connected to Q524 H-drive transistor to turn on and off Q524. The primary energy will be transferred to the secondary to drive the H-output transistor. Since T501 is buck and polarity reverse transformer, Q523 will be OFF once Q524 is ON. Q523 will be ON once Q524 is OFF.

The secondary of T501 is a proportional structure, which can fix the ratio of Ic/Ib, so Ib will have the best value to avoid that the turn off time for the horizontal transistor is too long, much power is consumed and the temperature rises too high.

C522 and C523 are used to modify horizontal linearity, using Q511 and Q510 MOSFET electrical switches as follows:

	Q510	Q511
< 35kHz	ON	ON
35～40kHz	OFF	ON
40～60kHz	OFF	OFF



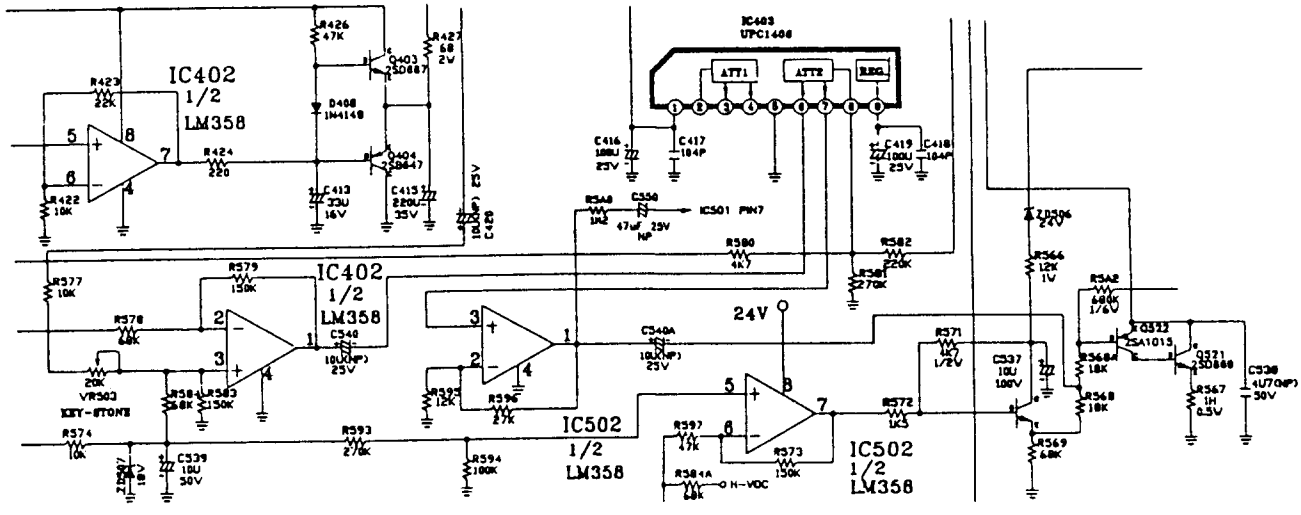
4. Pincushion Correction and Horizontal Width Control Circuit

IC402 LM358 constitutes a differential amplifier,where the parabolic waveform voltage can be taken from the two ends of C409.The parabolic waveform voltage can be used to be the diode modulator input signals for modifying the left and right pincushions of CRT.

VR503 key-stone changes the amplification of positive polarity for differential amplification.Adjust VR503 to modify the trapezoid distortion.The IC403 UPC1406 attenuator changes the waveform signals.

The diode modulator is made by two groups of LC oscillators in series.One of the groups is composed of DY and C518.The other group includes L506 and C519.The two LC oscillators have the same resonance frequency.When Q523 is turned off,the horizontal flyback pulse will be shared by C518 and 519 (Vcp=Vc518+Vc519). Thus,once Vcp is fixed,in the event that Vc519 increases,Vc518 and the current passing through H-DY will decrease,so H-Size will become smaller.

Conversely,when Vc519 decreases and Vc518 increases,the current passing through H-DY will increase and H-Size will become larger.The voltage used to control C538 is equal to the bias used to control C519 and L506.Also,the voltage controls the current passing through DY indirectly.The emitter follower is built by Q522 and Q521.If you add the parabolic signal and DC level to Q522 Basically,you control the DC level of parabola for C538.



5. Digital Control Circuit

A. Key-Scan:

The micro-processor sends Scan 0 and Scan 1 data (01 or 10) sequentially. Then P2.0, 2.1 and 2.2 can read the data to detect which key is pressed.

B. HS, VS Input:

* HS and VS are used as inverse buffers by way of Q601 and Q602.
* HS is sent to IC 80C51 pin 15 to calculate the frequency of HS using the pulse.
* VS is sent to IC 80C51 pin 12 to calculate the frequency and polarity.
* HS is sent to IC 80C51 pin 14 to judge the polarity.

C. CS Control (CS0-CS4)

The following show the CS control status:

	CS0	CS1	CS2	CS3	CS4
30k-34.5kHz	0	1	1	1	1
34.5k-40kHz	1	0	1	1	1
40k-50kHz	1	1	0	1	1
50k-60kHz	1	1	1	0	1
60k-70kHz	1	1	1	1	0

D. I^2C Bus (SCL, SDA)

The I^2C bus is used to read/write EPROM and DAC IC.

E. Reset Function

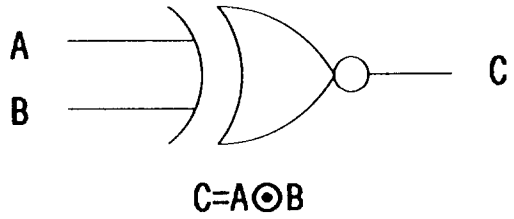
When VCC is greater than 2.5V, reset function will be enabled. At this time, IC 80C51 is in the reset state. When VCC is greater than 3.9V ± 0.7V (about 4.6V), Q603 will be ON to end the reset state.

F. Digital to Analog (TDA8444)

* The maximum output DC voltage of TDA8444 is equal to the voltage of pin 2. D602 and D603 are used for temperature compensation. The voltage of pin 2 is set to 6.2V to match monitor's circuit.
* DAC0, DAC1, DAC2 and DAC7 are combined with P0.0, P0.1, P0.2, P0.5 to change the voltage output step from 64 steps to 128 steps.

6. Sync Processor Circuit

A. The horizontal and vertical input sync signals pass through IC301 HEF4077BP EXCLUSIVE NOR GATE for signal polarity processing. The truth table of EXCLUSIVE NOR GATE is shown below:



A	B	C
0	0	H
0	1	L
1	0	L
1	1	H

B. IC301 pin 3 obtains a negative polarity sync waveform connected to the video IC LM1203BN pin 14 for clamping.

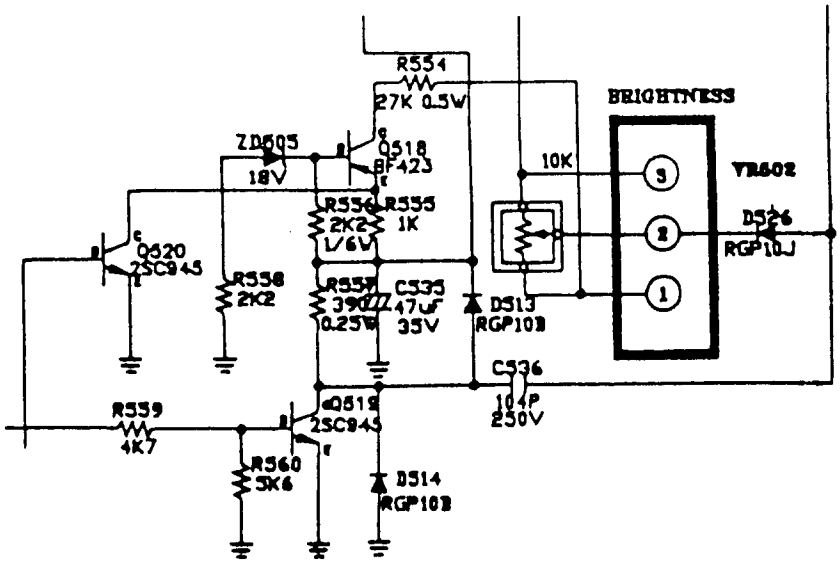
C. After the horizontal sync signal receives a constant negative signal, the waveform will be modified by IC302 F4528B and a sync signal with a fixed duty cycle used for signal input of horizontal IC LA7851 is received from pin 7. Plus, a horizontal sync signal with a fixed duty cycle will be received from pin 9 used for the digital IC to control the horizontal input of 80C51. Another horizontal sync signal with a fixed duty cycle will be received from pin 9 used for the digital IC to control the signal input of 80C51 to detect mode.

D. The vertical sync signal receives a constant negative polarity waveform from IC301 pin 4. Since the vertical sync signal of TDA1675 is a positive input, a positive vertical sync signal will be obtained after Q303 is inverted.

7. Blanking and Spot Killer Circuit

In normal condition, the voltage of Q518 is 24V and the voltage of the Base is 24V because it is connected to ZD505 18V Zener Diode externally, so that Q518 will be turned on. After Q518 is turned on, 24V will be received from the collector by way of R554, VR502, R549 and C528. Adjust the voltage of G1 to control the CRT brightness, using VR502 (from -20V~-60VD). At power-off, the voltage (24V) will drop below 18V rapidly. At that time, Q518 is OFF because of no forward bias and R554 is regarded as breakdown so the shunt will be gone. The voltage of VR502 is equal to the voltage of negative polarity of C528 approximately. C528 remains at least -100V voltage enough to cut off beam current to protect CRT.

IC401 pin 3 receives a positive flyback pulse normally, which just can be used as a positive blanking pulse to eliminate the vertical blanking on the screen. The positive flyback pulse will be amplified and inversed via Q519, then a negative pulse will be created from Q519 collector. The negative pulse will be coupled to G1 through C536 for V-Blanking.



8. Auto-Alignment Control

The Test pin (80C51 pin 13) is used to acknowledge 80C51 to enter the test mode. During Test = 0, 80C51 will enter the slave mode. At that time, 80C51 only accepts the external signals as SCL and SDA, that can control the output values of Port 0 (P0.0~P0.7) and Port 1 (P1.0~P1.7) via IC Bus.

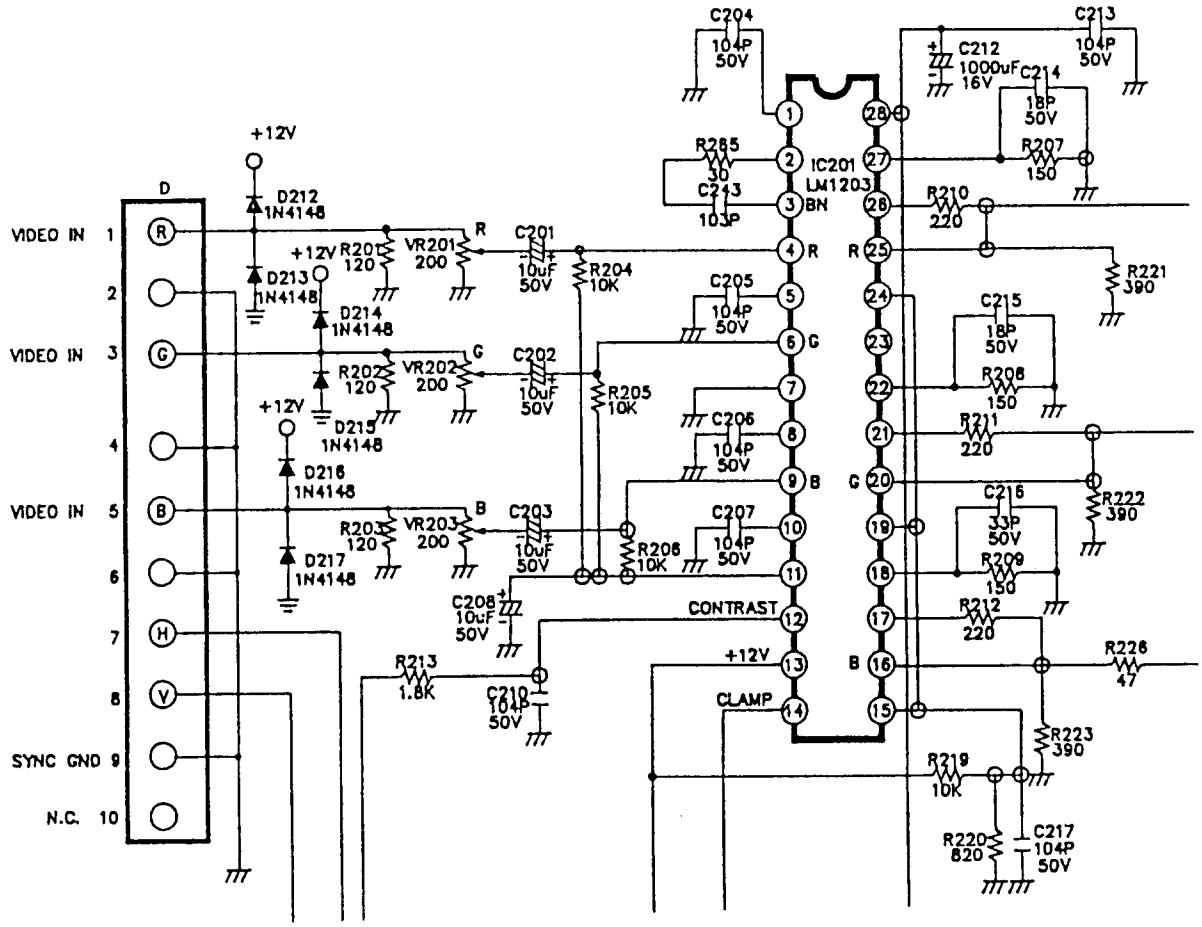
Also, EEPROM and DAC are controlled by SLC and SDA via IC Bus.

9. Video Preamplifier

IC201 LM1203BN is used for video preamplifier with 100MHz bandwidth. Pin 4, pin 6, pin 9 are RGB input signal terminals and VR201, VR202, VR203 are used as gain adjustment for white balance.

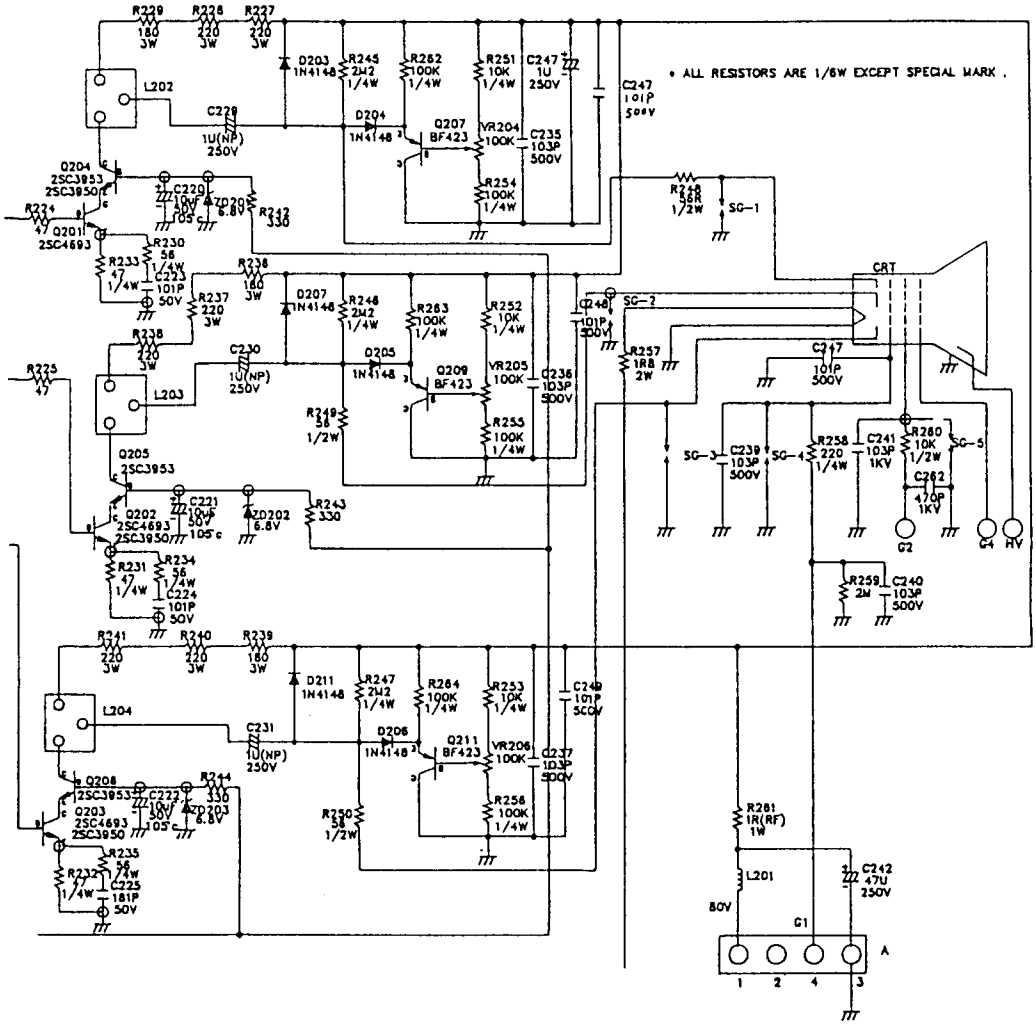
Pin 12 is used for contrast control. Pin 14 is an input negative pulse for H-clamp as a restorer.

Pins 16, 20 and 25 are output RGB signals which are amplified by LM1203BN about 6 times, then the output signals are sent to the video output amplifier.



10. Video Output Amplifier

Q201 and Q204 constitute a cascade amplifier for Red signal output amplifier and Q202, Q205, Q203 and Q206 have the same combination as Q201 and Q204. Q202 and Q205 are used for green signal output amplifier. Q203 and Q206 are used for the blue signal output amplifier. L202, L203, L204 are used as a peaking coil, which has mutual inductance to enhance high frequency response. Q207, Q209, Q211 are used to adjust RGB cut-off for white balance.



PARTS DIFFERENCE LIST

PARTS DIFFERENCE LIST BETWEEN JC-1432VMA AND JC-1432VMB

SYMBOL	JC-1432VMA		JC-1432VMB	
	PART NO	DESCRIPTION	PART NO	DESCRIPTION
	79PB0261	AC POWER CORD (VMA)	79PB0278	AC POWER CORD (VMB)
	79PB0314	CARTON BOX (VMA)	79PB0319	CARTON BOX (VMB)
	79PB0315	USER'S MANUAL (VMA)	79PB0317	USER'S MANUAL (VMB/R)

PARTS DIFFERENCE LIST BETWEEN JC-1432VMA AND JC-1432VMR

SYMBOL	JC-1432VMA		JC-1432VMR	
	PART NO	DESCRIPTION	PART NO	DESCRIPTION
	79PB0261	AC POWER CORD (VMA)	79PB0279	AC POWER CORD (VMR)
	79PB0314	CARTON BOX (VMA)	79PB0316	CARTON BOX (VMR)
	79PB0315	USER'S MANUAL (VMA)	79PB0317	USER'S MANUAL (VMB/R)
			79PB0318	WARRANTY CARD (VMR)

PARTS DIFFERENCE LIST BETWEEN JC-1432VMB AND JC-1432VMR

SYMBOL	JC-1432VMB		JC-1432VMR	
	PART NO	DESCRIPTION	PART NO	DESCRIPTION
	79PB0278	AC POWER CORD (VMB)	79PB0279	AC POWER CORD (VMR)
	79PB0319	CARTON BOX (VMB)	79PB0316	CARTON BOX (VMR)
			79PB0318	WARRANTY CARD (VMR)

REPLACEMENT PARTS LIST

The components specified for
Model JC-1432VMA

SYMBOL	PART NO	DESCRIPTION
*** CRT ***		
CRT	79PB0101	CRT ASSY
*** ICS ***		
IC201	79PB0111	IC LM1203BN
IC301	79PB0112	IC HEF4077BP
IC302	79PB0113	IC HEF4528BP
IC401	79PB0114	IC TDA1675A
IC402 IC502	79PB0115	IC HA17358
IC403	79PB0116	IC UPC1406HA
IC501	79PB0117	IC LA7851
IC601	79PB0118	IC LM7805CT
IC602	79PB0119	IC TEI9401
IC603	79PB0120	IC ST24C02AB1
IC604	79PB0121	IC TDA8444/N3
IC605	79PB0122	IC HD74LS138P
IC901	79PB0123	IC UC3842N
IC902	79PB0125	IC HA17384PS
IC903	79PB0124	IC MOT7812CT
*** TRANSISTORS ***		
Q15 Q3 Q303 Q304 Q4 Q401 Q5 Q501 Q504 Q506 Q508 Q509 Q519 Q520 Q6 Q602 Q603 Q902 Q951 Q952 Q953 Q954 Q957 Q958	79PB0131	TR 2SC945P-T
Q7	79PB0132	TR 2SB649AC
Q8	79PB0133	TR 2SA673ACTZ
Q201 Q202 Q203	79PB0134	TR 2SC4693
Q204 Q205 Q206	79PB0135	TR 2SC3953E
Q207 Q209 Q211 Q518 Q528 Q529 Q960	79PB0136	TR BF423
Q301 Q302 Q601	79PB0137	TR PH2369
Q403	79PB0138	TR 2SD667C
Q404	79PB0139	TR 2SB647C
Q502 Q505 Q507 Q514 Q515 Q904 Q955 Q956	79PB0140	TR 2SA733P-T

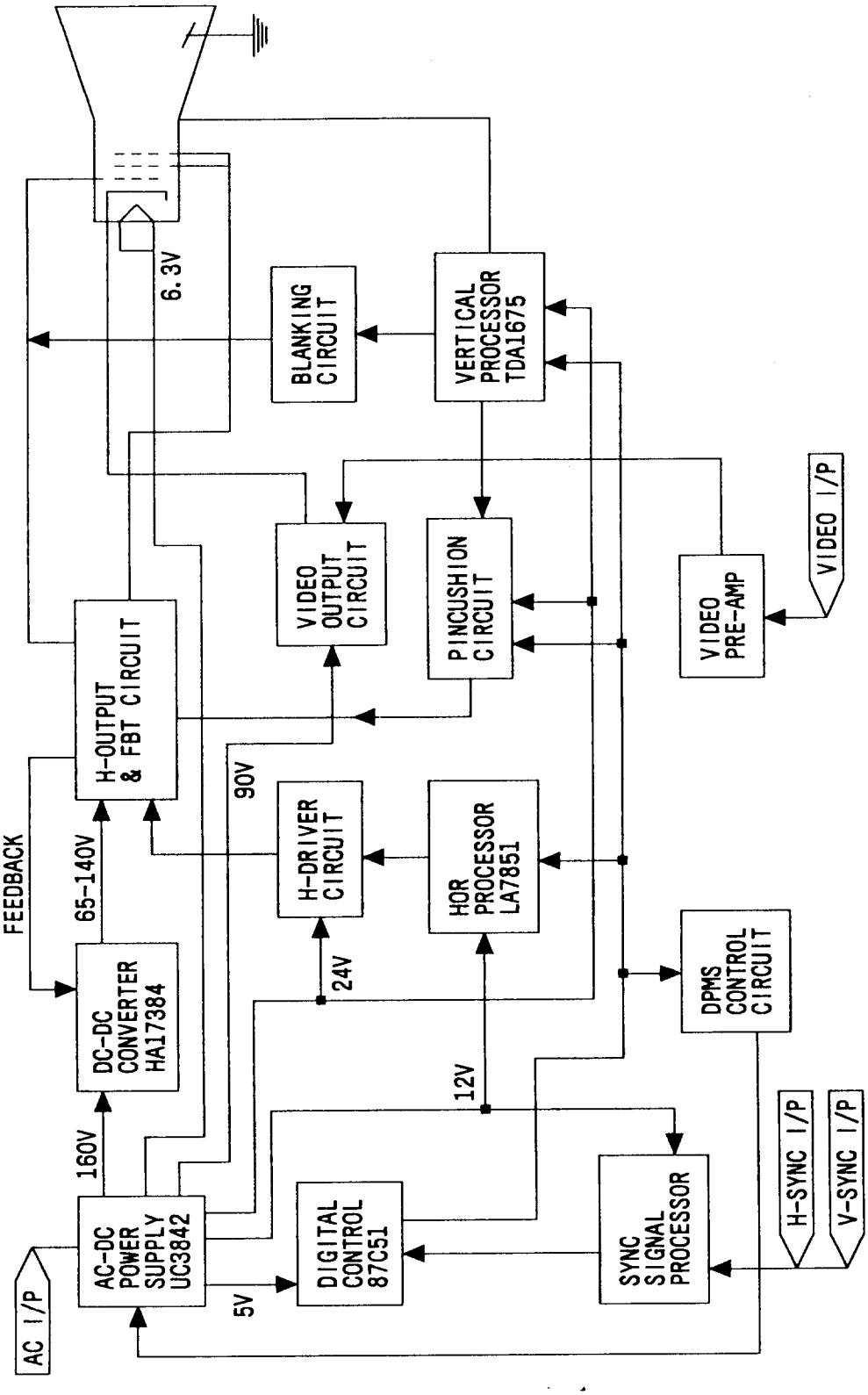
SYMBOL	PART NO	DESCRIPTION
*** TRANSISTORS ***		
Q510 Q511	79PB0141	TR IRF640
Q512	79PB0142	TR BC338
Q513	79PB0143	TR BC328
Q521	79PB0144	TR 2SD669AC
Q522	79PB0145	TR 2SA1015-Y-TPE2
Q523	79PB0146	TR 2SC4924
Q524	79PB0147	TR 2SC2235-Y-TPE6
Q530	79PB0148	TR BF422
Q901	79PB0149	TR 2SK1118
Q950	79PB0150	TR IRF730
*** DIODES ***		
D1 D19 D2	79PB0161	DIODE 1N4148T-77
D203 D204 D205		
D206 D207 D211		
D212 D213 D214		
D215 D216 D217		
D301 D302 D401		
D403 D404 D405		
D408 D5 D501		
D508 D511 D511A		
D512 D512A D515		
D518A D519 D520		
D523 D524 D7		
D903 D905 D906		
D908 D910 D912		
D950 D951 D956		
D957 D958 D959		
D960 D962 D963		
D402 D6	79PB0162	DIODE 1N4001
D14	79PB0163	DIODE RD5.6EB2-TA11R
D15	79PB0164	DIODE 1N4004
D502 D507 D509	79PB0165	DIODE RGP10B
D513 D514		
D502A D931	79PB0166	DIODE BYM26C
D503	79PB0167	DIODE DD54RC
D504	79PB0168	DIODE UF5404
D505 D506 D510	79PB0169	DIODE RGP10J
D526 D907 D911		
D516 D517 D904	79PB0170	DIODE RGP10D
D909		
D604 D605 D606	79PB0171	LED SDL-3C3G
D607 D608		
D901	79PB0172	DIODE GBL08L-5601
D902	79PB0173	DIODE BYV26E

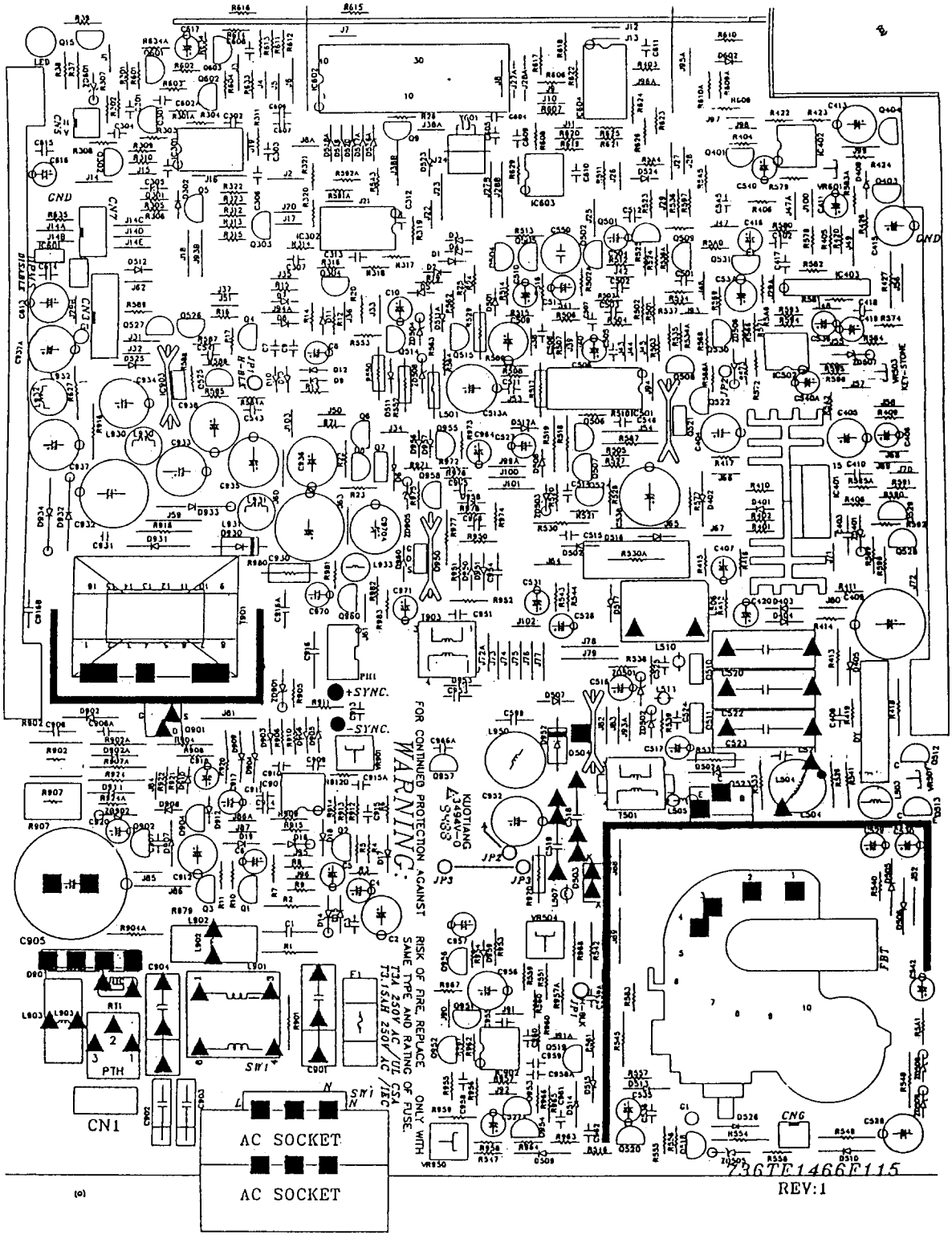
SYMBOL	PART NO	DESCRIPTION
*** DIODES ***		
D902A	79PB0174	DIODE RGP10M
D930	79PB0175	DIODE DTV32-1000A
D932 D933 D952	79PB0176	DIODE BYM26B
D934	79PB0177	DIODE 31DF4
D964	79PB0178	DIODE 1N4148TD
ZD201 ZD202 ZD203	79PB0179	DIODE RD6.8EB3-TA11R
ZD905		
ZD401	79PB0180	DIODE HZ4A2TD
ZD501 ZD502 ZD507	79PB0181	DIODE HZ18-2TD
ZD901		
ZD503	79PB0182	DIODE RD30EB-TA11R
ZD504 ZD506 ZD508	79PB0183	DIODE RD24EB3-TA11R
ZD505	79PB0184	DIODE RD13EB3
ZD601	79PB0185	DIODE RD6.2EB3-TA11R
ZD902	79PB0186	DIODE RD16EB3,T
LED	79PB0187	LED KTL-5N5YG
*** TRANSFORMERS ***		
T501	79PB0191	TRANS D09009
T502	79PB0192	FBT CF0683
T901	79PB0193	TRANS D09010
T903	79PB0194	TRANS KJT-92216
*** VARIABLE RESISTORS ***		
VR201 VR202 VR203	79PB0201	VR TB069A-0C-200H
VR204 VR205 VR206	79PB0202	VR TB069A-0C-100K
VR207 VR502	79PB0203	VR V0102LPV-20U-B10K
VR501	79PB0204	VR VG067TH1B5K
VR503	79PB0205	VR TB069A-0C-22K
VR504	79PB0206	VR TB067A-0C-B20K
VR601	79PB0207	VR TB069A-0C-1K
VR901	79PB0208	VR TB067A-0C-B5K
VR950	79PB0209	VR TB067A-0C-B10K
*** SWITCHES ***		
SW601 SW602 SW603 SW604 SW605	79PB0221	SW SKHHPM2520-TY2
	79PB0222	SW ASSY

SYMBOL	PART NO	DESCRIPTION
*** COILS & FILTERS ***		
L201	79PB0231	COIL CK-0810-1002
L202 L203 L204	79PB0232	COIL D09008
L501	79PB0233	COIL K330K,A
L503	79PB0234	COIL HM94007
L504	79PB0235	COIL D09012
L505	79PB0236	COIL RH035045B-B-02
L506	79PB0237	COIL D09007
L510 L511	79PB0238	COIL RH035045PT-B
L512	79PB0239	COIL LFC-S-353013
L901	79PB0240	LINE FILTER TP6983A
L902 L903	79PB0241	COIL KJC-92223
L930 L931 L932	79PB0242	COIL TLH-3027
L933	79PB0243	COIL KJC-92186
L950	79PB0244	COIL KJC-92218
*** PWB ASSYS ***		
	79PB0251	MAIN PWB ASSY
	79PB0252	CRT PWB ASSY
	79PB0253	VR PWB ASSY
	79PB0254	CONTROL/LED PWB ASSY
*** ELECTRICAL PARTS & MISCELLANEOUS PARTS ***		
	79PB0261	AC POWER CORD (VMA)
	79PB0263	FUSE HOLDER
FS1	79PB0264	FUSE 3.1A/250/SEMKO
	79PB0265	COIL DEGAUSSING
Y601	79PB0266	CRYSTAL 12.000MHZ
	79PB0267	AC SOCKET ASSY
SG-1 SG-2 SG-3	79PB0268	SPARK GAP KSA-201-30RT
SG-4	79PB0269	SPARK GAP KSA-301-30RT
SG-5	79PB0270	SPARK GAP AG15PC122FS-K2M
	79PB0271	SOCKET CRT 0330550044
RT1	79PB0272	THERMISTOR
NTC	79PB0273	THERMISTOR N13SP008L
	79PB0274	SIGNAL CABLE
*** APPEARANCE PARTS ***		
	79PB0281	BACK COVER ASSY
	79PB0282	SWIVEL ASSY
	79PB0283	FRONT PANEL
	79PB0284	DOOR SWITCH
	79PB0285	CTL DOOR
	79PB0286	SUPPORT PCB
	79PB0290	NAME PLATE,INSTRUCTION

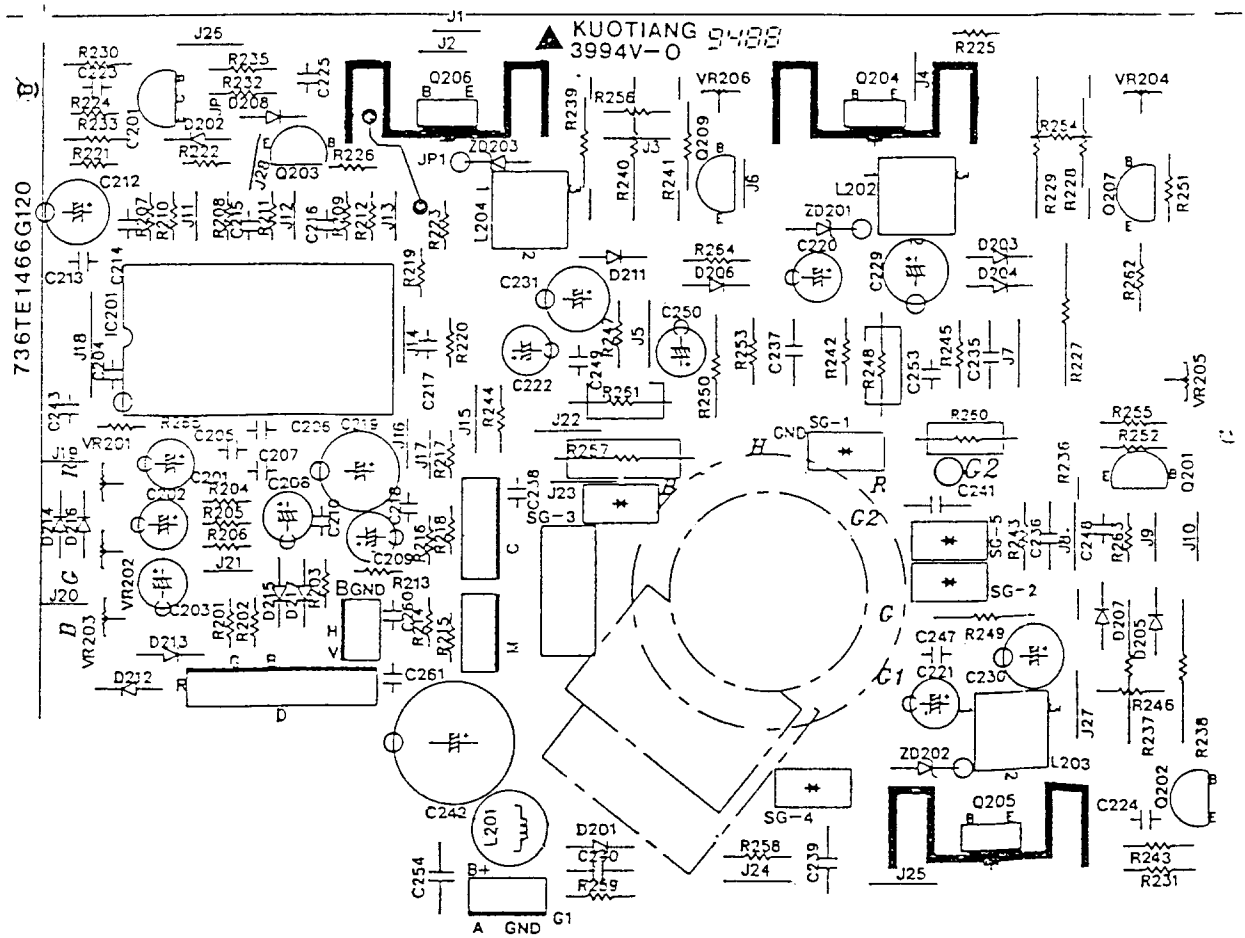
SYMBOL	PART NO	DESCRIPTION
*** KNOB ***		
	79PB0301	KNOB POWER
	79PB0302	KNOB VR
*** PRINTED & PACKING MATERIALS ***		
	79PB0311	PE SHEET
	79PB0312	POLYFOAM TOP
	79PB0313	POLYFORM BOTTOM
	79PB0314	CARTON BOX (VMA)
	79PB0315	USER'S MANUAL (VMA)
*** RESISTORS ***		
R261 R540 R916 R968	79PB0321	RES RF1PG1HJ,A
R542 R545 R548	79PB0322	RES RF1/2PG2R2HJ,T
*** CAPACITORS ***		
C219	79PB0331	CAP KME16VB1000-M-MC
C229 C230 C231	79PB0332	CAP RN-105250-504M6
C312	79PB0333	CAP CQ92K2A152J,T
C404	79PB0334	CAP KME35VB470-M-MC
C420	79PB0335	CAP RN-106025-004M6
C502	79PB0336	CAP CQ14K2A182J,F
C508	79PB0337	CAP CQ93P2A222J,B
C518	79PB0338	CAP CF93P3D472J,K
C519	79PB0339	CAP CF93P3A103J,G
C520	79PB0340	CAP CF93P2G684J,J
C522	79PB0341	CAP CF93P2E474J,K
C538	79PB0342	CAP BP1HR4R7KXB4
C550	79PB0343	CAP RN-476050-708M5
C905	79PB0344	CAP CEAWF2G331M30
C930	79PB0345	CAP GR-107250-612M1
C932	79PB0346	CAP KMG160VB330-M-MC
C933	79PB0347	CAP KME25VB1000-M-MC
C935	79PB0348	CAP KME35VB1000-M-MC
C937	79PB0349	CAP KME16VB2200-M-MC

BLOCK DIAGRAM





MAIN PWB
— Component Side —



CRT PWB
— Component Side —

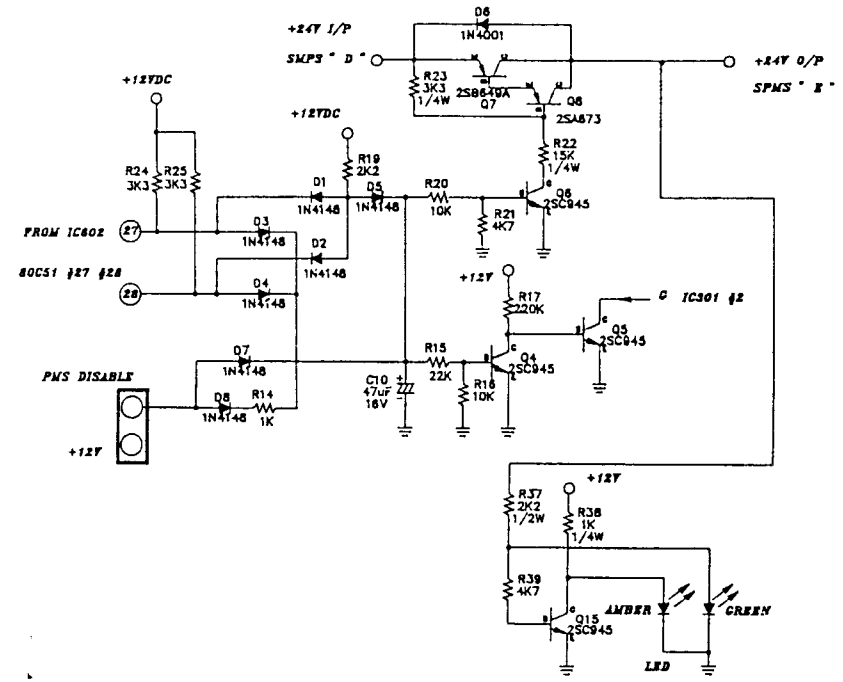
CONTRAST *BRIGHTNESS*

VR PWB
— Component Side —

MODEL JC-1432VMA/B/R POWER MANAGEMENT

RUN No.1

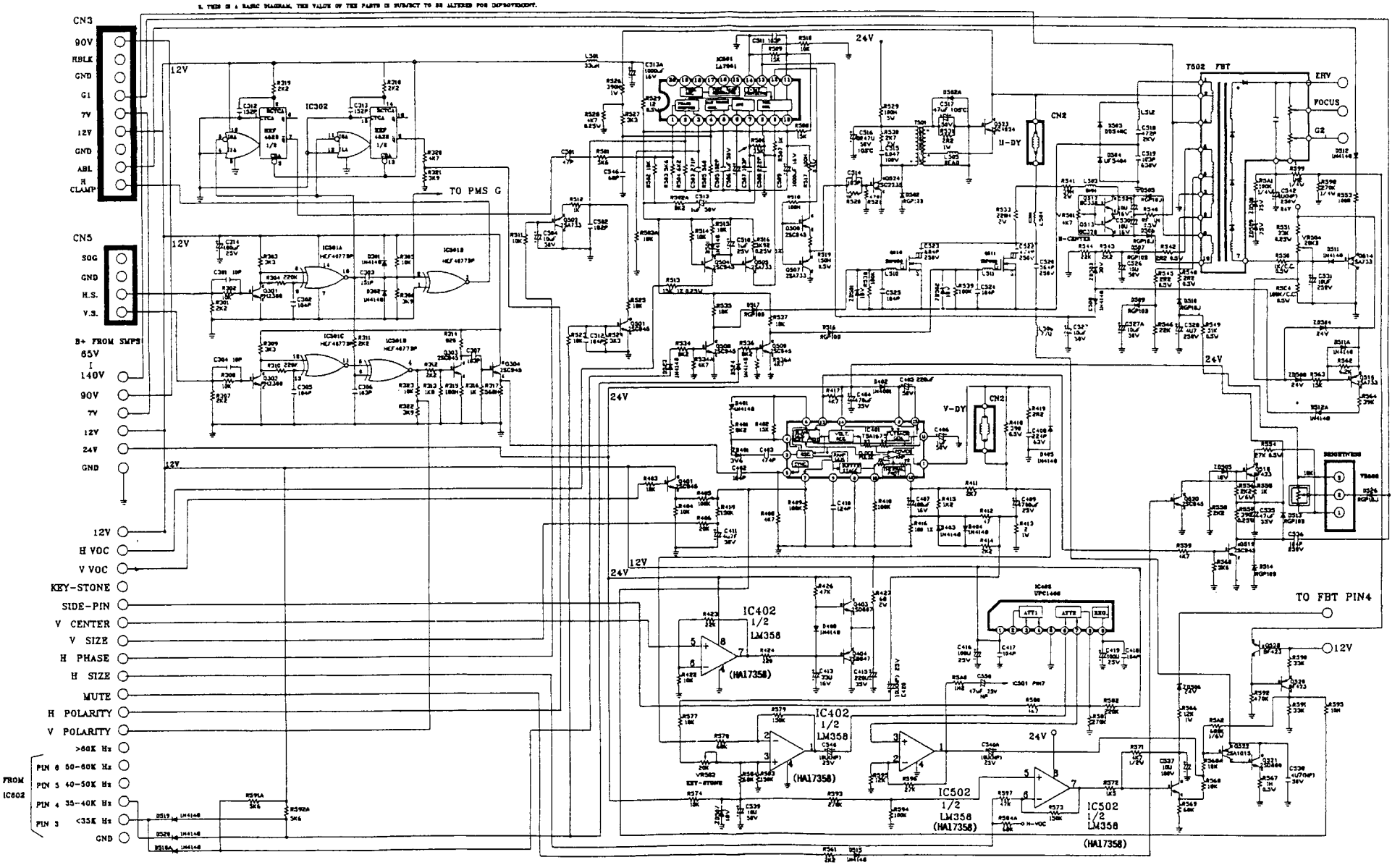
SCHEMATIC DIAGRAM



08119798-800

MODEL JC-1432VMA/B/R VERTICAL & HORIZONTAL DEFLECTION SCHEMATIC DIAGRAM

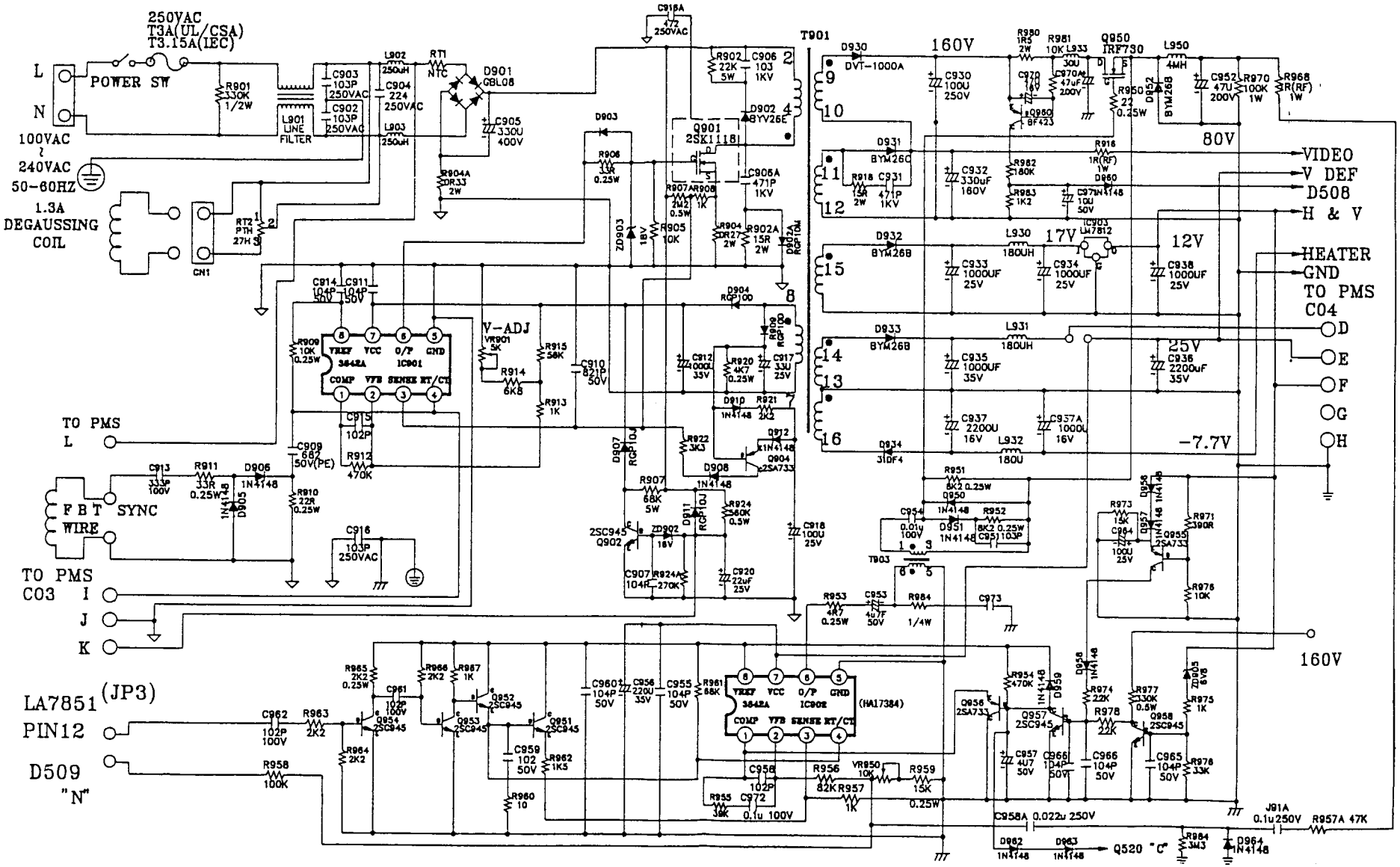
RUN No.1



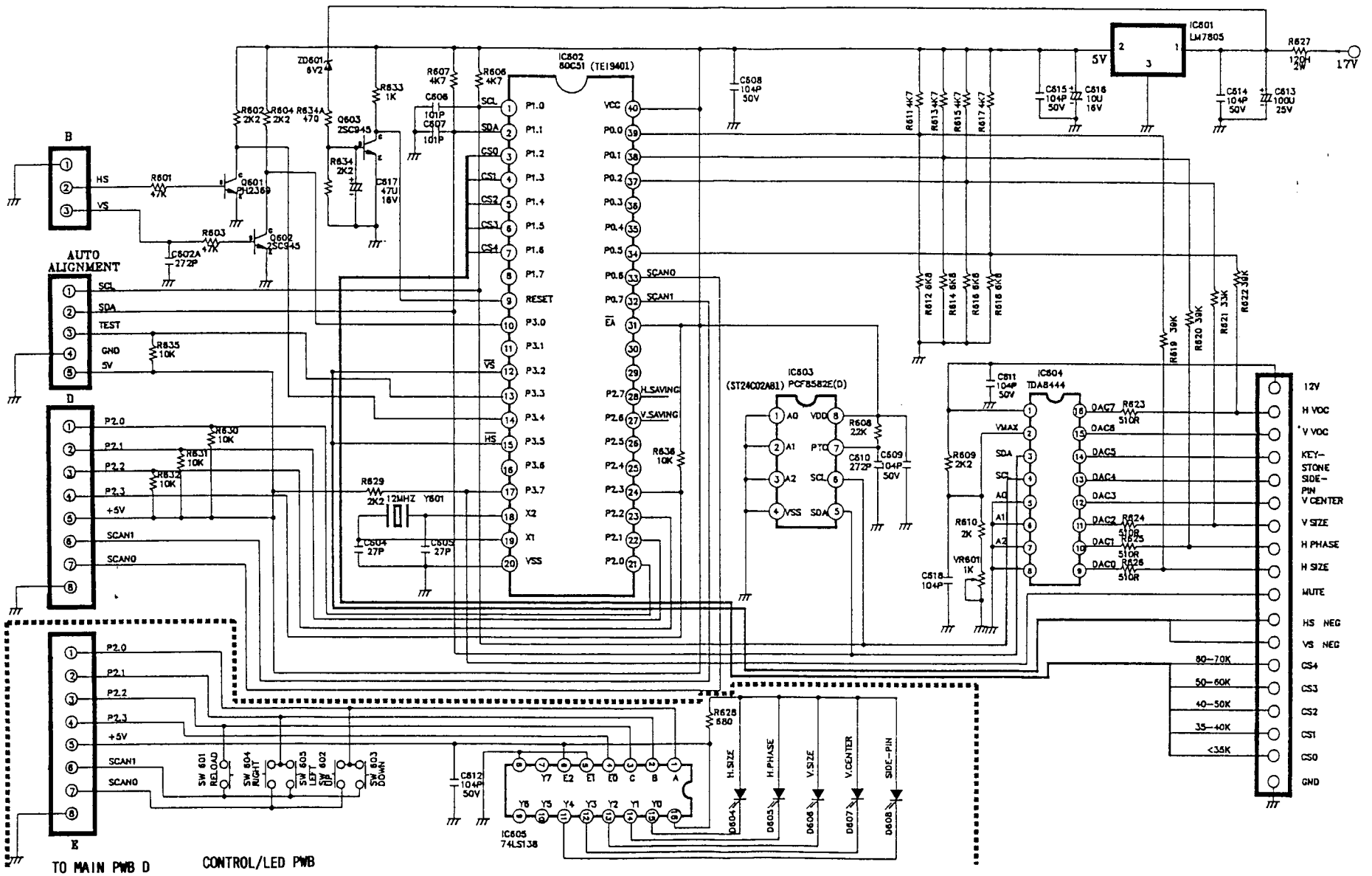
08119798-800

MODEL JC-1432VMA/B/R SMPS SCHEMATIC DIAGRAM

RUN No.1



MODEL JC-1432VMA/B/R DIGITAL CONTROL & LED SCHEMATIC DIAGRAM RUN No.1



08119798-800

MODEL JC-1432VMA/B/R CRT & VIDEO SCHEMATIC DIAGRAM

RUN No.1